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The effects of narrative elicitation task on the verb morphological patterns of younger adolescents with and without specific language impairment

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The Effects of Narrative Elicitation Task on the Verb Morphological Patterns of Younger Adolescents with and without Specific Language Impairment

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Acknowledgements

"We are what we repeatedly do. Excellence, then, is not an act, but a habit."

-Aristotle

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Introduction

Specific Language Impairment (SLI) is one of the most commonly occurring communication disorders (Castrogiovanni, 2008). SLI is an impairment in the language of children, adolescents and adults who show no other impairment such as mental, emotional or physical problems. Individuals with SLI demonstrate normal intelligence as shown by nonverbal Intelligence Quotient (IQ) scores; however, their language skills appear to be worse than their normally achieving (NA) peers. There has been an issue in identifying individuals with SLI. One factor contributing to the identification issues of SLI is the lack of a clinical marker. Currently, there is no consensus regarding a standard assessment for the issue.

Although no clinical marker currently exists, tense marking, specifically past tense marking, seems to be a grammatical limitation for children with SLI and implies possible clinical identification (Rice, Wexler, & Cleave, 1995).The finding of a clinical marker would aid in the diagnosis of SLI. The possibility of establishing a clinical marker could potentially lead to increased accuracy in identification and diagnosis of individuals with SLI. If discovered, such a marker could be used to reliably identify affected individuals for the purpose of scientific investigation or intervention services (Rice & Wexler, 1996).A clinical marker would also be useful in determining the differences in language development and performance that exists between individuals with and without SLI. Though there is currently no established clinical marker, for some time it has been noted that grammatical morphology is a particular locus of difficulty for children with SLI (Rice et al., 1995). The extraordinary struggle that children with SLI possess seems to present verb morphology as a possible clinical marker of the condition.

Young Children with SLI and Verb Morphology

Although younger children with SLI often exhibit problems in a variety of areas of language, their difficulties with grammatical morphology are especially salient (L. Leonard, Miller, & Finneran, 2009). Research on verb morphological patterns of children with SLI has suggested that when compared to their NA peers, verb morphology, and in particular, past tense marking of verbs appears to be a greater issue for children with SLI. These problems identify verb morphology as a potential clinical marker for SLI.

In their work, *Toward Tense as a Clinical Marker of Specific Language Impairment in English-Speaking Children*, Rice and Wexler (Rice & Wexler, 1996) predicted three specific indicators that would enhance support toward verb morphological performance as a clinical marker of SLI. First, young SLI children would demonstrate a deficiency in verb accuracy in comparison to their NA peers. Second, young SLI children would specifically show difficulty with the use of tense marking morphemes, but not struggle with morphemes unrelated to tense marking. Third, a distribution would show young SLI children clustering at lower levels of accuracy in tense marking while their NA peers cluster at higher levels of accuracy. The first predicted indicator was supported by studies revealing the struggle that young SLI children have with past tense marking (Rice & Wexler, 1996; Rice et al., 1995; Rice, Wexler, & Hershberger, 1998; Rice, Wexler, Marquis, & Hershberger, 2000). The second predicted indicator was supported by the previous and other studies (L Leonard et al., 2002; Rice & Wexler, 1996; Rice et al., 1995; Rice et al., 1998)which showed children with SLI having less verb morphological errors associated with subject/verb agreement, but showed them having high amounts of errors on verb tense morphemes. These verb tense morpheme errors

include the omission of tense markers in obligatory linguistic contexts. According to several studies (Rice & Wexler, 1996; Rice et al., 1995; Rice et al., 1998), it was suggested that young children with SLI may possess knowledge of tense features, but do not possess the knowledge that finite verb forms (inflection of tense, person and number) are mandatory in main clauses. Young Children with SLI may even demonstrate an inconsistent use of tense marking in the same verbs, suggesting that they may treat tense marking as optional even when they are capable of producing the correct verb form. Children with SLI also typically make few errors of commission in that when they do use tense marking morphemes, they are generally in the correct context (L Leonard et al., 2002). Thus, they tend to erase the morpheme all together. Supporting the hind indicator, these difficulties of tense marking leave children with SLI clustering at low levels of verb performance accuracy, while their NA peers approach an adult-like mastery of the verb system with increasing age.

Because children with SLI may lack the knowledge of the necessity of tense marking, researchers have found it helpful to distinguish morphosyntactic and morphophonological components of morphology. Morphosyntactic components require the comprehension that past tense contests require the past tense stem form. This includes the knowledge that past tense verbs require the addition of the "-ed" stem as well as the knowledge of irregular past tense verbs. Morphophonological components comprise the knowledge of the phonological structure of irregular and regular past tense marking (Rice et al., 2000).

In a longitudinal study (Rice et al., 2000) extending 3.5 years, the presence of morphosyntactic deficits found in previous studies of (Rice & Wexler, 1996; Rice et al.,

1995; Rice et al., 1998) was supported. This study allowed for the developmental patterns of children to be observed. The results of the study backed previous findings (Rice & Wexler, 1996; Rice et al., 1995; Rice et al., 1998) that showed young children with SLI struggled with past tense marking in comparison with their NA peers. Researchers found that children with SLI possessed the knowledge of past tense and the necessity of adding morphemes to the bare stem of a word, but they were unable to handle the complexities of the morphological form. Most notably, the children with SLI displayed a particular difficulty with the acquisition of the regular past tense "-ed" form. These children were found to be more likely to use bare-stem forms in place of past tense marking. These observed patterns contrasted with the NA group of children who demonstrated achievement of an adult-like grammar structure, including acquisition of the regular past tense "-ed" by the conclusion of the study.

An uncontested finding is that children with SLI have significant difficulty acquiring regular past tense "-ed" (Rice & Redmond, 2001). In order to study irregular past tense acquisition, (Rice & Redmond, 2001) administered a study to determine if similar results would be found in irregular past tense performances of children with SLI. The researchers employed grammaticality judgment tasks and found that children with SLI tended to overgeneralize verb forms in order to achieve finiteness (for example, "runned" for "ran" and "leck" for "looked"). These overgeneralizations occurred in about 68% of contexts for children with SLI while their NA peers accepted these forms as correct in only about 36% of contexts. The researchers also found that SLI children tended to accept infinitive forms for irregular past tense in 11% of all contexts, while

their NA peers accepted none. Children with SLI demonstrated a reduced sensitivity to errors involving the irregular past tense form.

These findings support the proposition that children with SLI demonstrate morphosyntactical inadequacies with the regular and irregular past tense marking of verbs as well as provide support for verb morphology as a potential clinical marker of SLI (L Leonard et al., 2002; Rice & Redmond, 2001; Rice & Wexler, 1996; Rice et al., 1995; Rice et al., 1998; Rice et al., 2000). Unfortunately, the verb morphological patterns of adolescents remain a mostly neglected topic of study. Therefore, it is not yet known if verb morphology might function as a clinical marker for adolescents with SLI.

Adolescents with SLI and Verb Morphology

Although more studies exist on the verb morphological patterns of children with SLI and less exist on the verb patterns of adolescents with SLI, a few recent studies are beginning to show evidence that inadequacies in verb morphology continue in children as they mature into adolescence (L. Leonard et al., 2009; Miller, Leonard, & Finneran, 2008; Reed & Conrad, 2006; Rice, Hoffman, & Wexler, 2009; Wetherall, Botting, & Conti-Ramsden, 2007). Many children with SLI have problems that are longstanding, with difficulties often extending through elementary school and into adolescence (L. Leonard et al., 2009). These studies reveal a persisting difficulty with tense marking that does not cease once children reach adolescence. If these verb morphological inadequacies are observed to be intractable as children age, then verb morphology could further prove to be a clinical marker in adolescents.

Clinically, it is important to be familiar with the language patterns of adolescents with SLI in order to create assessment standards and procedures that will effectively identify children with SLI into adolescence. Such findings are relevant to the development of assessments designed to identify school-age children and on into adolescence and beyond (Rice et al., 2009). Rice (2009) conducted a longitudinal study in order to track the language patterns of children with SLI as they grew older. The participants in the study were the same participants from the Rice (1998) study that observed tense acquisition in children with SLI. Researchers employed grammaticality judgment tasks, in which they asked SLI, NA and language matched (LM) adolescents to rate grammatically correct and incorrect sentences as either "good" or "not so good". The results of the study are as follows: adolescents with SLI correctly identified sentences with omitted verbs 77% of the time, while their LM peers correctly identified the omitted verbs 94% of the time. These results revealed that SLI adolescents continue to perform at lower levels of accuracy on judgments of finiteness and ultimately do not "catch up" to their NA and LM peers. Although researchers hypothesize that tense marking inadequacies would most likely not stay the same in adolescence as it was in childhood, these results imply that the inadequacies are not fully resolved into adolescence.

Similar results were found in other studies(L. Leonard et al., 2009; Miller et al., 2008). Miller (2008) implemented a study to test if morphosyntactic problems of past tense marking were still present in 16 year-old adolescents with SLI. The researchers employed grammaticality judgment tasks and found that the SLI adolescents displayed deficits in regards to morphology, specifically with tense (such as "-ed") and non-tense (such as –ing) omissions. In contrast to their NA peers, SLI adolescents struggled with

regular past tense (-ed) marking. Adolescents with SLI recognized "-ed" omissions in only 80% of all contexts, whereas their NA peers recognized omissions in 89% of all contexts. When compared to previous studies on younger children with SLI, the researchers did not identify differences between SLI and NA adolescents on omissions of tense marking. Although SLI still exhibited a deficit in morphology, they were not shown to be significantly different from their age-matched peers. It cannot be assumed that an older child or adolescent who produces few morphological errors has fully mastered grammatical morphology (Miller et al., 2008). Researchers suggest that these findings indicate that impairment may continue into adolescence, but the degree and nature of the impairment may alter over time.

Both Miller (2008) and Rice (2009) employed grammaticality judgment tasks to determine verb morphological patterns of adolescents, but a few other groups of researchers (Reed & Conrad, 2006; Reed & Evernden, 2001; Reed & Patchell, 2004; Reed, Patchell, & Conrad, 2006; Wetherall et al., 2007) have investigated verb morphology productions of SLI adolescents. These researchers have employed the use of narratives in order to explore the productive morphological patterns of adolescents.

The Reed and Evernden (2001) Preliminary Study

Reed and Evernden (2001) conducted the initial examination in the series of Reed and colleagues' (Reed & Conrad, 2006; Reed & Patchell, 2004; Reed et al., 2006) studies by exploring whether older children and young adolescents with reading and/or language difficulties displayed inadequacies in verb morphology when compared to their NA peers. The 24 subjects in the study ranged in age from 8;5 to 12;0 years. Twelve subjects had reading difficulties (RD) and the other 12 were their NA peers. In part due to the

associations between reading difficulties and SLI, the RD participants were selected as a sample of convenience because of their participation in a remedial reading program. All 12 RD participants scored below normal on at least two tests of language ability. Participants in both groups were matched for chronological age, gender, socio-economic status (SES; middle SES), and language spoken in the home (Australian English).

The task that Reed and Evernden (2001) selected was a narrative story telling task. The story telling task promoted use of past tense marking. The researchers asked the participants to tell a story that aligned with the pictures in a wordless picture book, *Frog, Where are you* (Mayer, 1969). The language sample derived from this narrative task provided researchers with an analysis of spontaneous verb productions. The language samples were analyzed and transcribed according to a predetermined template for verb classification into the following categories: type, form and accuracy.

When compared to the NA group, the RD group was shown to display a greater number of errors on the irregular past tense. A majority of these errors involved overgeneralizations of the morpheme "-ed". These patterns mirrored patterns found in pervious studies of children with SLI (Rice & Wexler, 1996; Rice et al., 1995; Rice et al., 1998).

A difference was also observed between the two groups' respective proportional present and past tense use. The present tense made up about 10% of the verbs elicited by the RD group, whereas it only comprised about 2.6% of those used by the NA group. The RD group used present tense forms, such as the auxiliary "be"+ progressive -ing form and the third person singular verb form, more than the NA group. The RD children used the auxiliary "be"+ -ing form, in both the past and the present, for 12% of their total verb

usage whereas this form only accounted for about 7% of the verb usage for the NA group. Although increased use of the progressive form was observed by the RD group, the RD group tended to use the present progressive form more than the past progressive form whereas the opposite was observed in the NA group consistent with the NA's greater use of past tense.

The tense shifting patterns of the two participating groups were also observed. A tense shift was defined as any switch in tense from a previous utterance that lasted for two or more consecutive utterances in a transcript. The analysis revealed that 33% of the RD group displayed at least one tense shift, whereas only 16% of the NA group displayed a shift in tense. The RD group also demonstrated a greater variety of patterns and types of tense shifting than did the NA group. The increased amount of tense shifting in the RD group was believed to be one indicator of the stress placed on the language system by the narrative task. It can therefore be hypothesized that tense shifting is the result of the challenge in maintaining what is a difficult tense marking form, such as past tense, for adolescents with language and reading difficulties.

Although the RD group had lower levels of accuracy compared to their NA peers, only a small difference was observed between the groups regarding the overall proportion of verb errors. However, the study revealed several tense marking difficulties of older children with language and reading issues. This issue in verb morphology was indicated by the greater proportion of errors on irregular past tense verbs, a higher occurrence of present tense and progressive verbs in narratives, a difficulty with tense, as evidenced by tense shifting, and a fewer number of RD individuals approaching verb accuracy levels. The persistence of verb morphological errors in older RD children further suggests and

supports the idea that children with SLI do not fully overcome their verb difficulties when they get older.

Subsequent Reed and Colleagues Studies

Based on the methodology of the preliminary study (Reed & Evernden, 2001) and using the same narrative task (*Frog, Where are you*), Reed and colleagues (Reed & Conrad, 2006; Reed & Patchell, 2004; Reed et al., 2006) conducted a variety of studies on the verb patterns of adolescents with and without SLI. Subjects were selected as SLI and NA adolescents between the ages of 12;1 to 14;2 year for the Reed and Patchell (2004) study and 14;11 to 16;11 years for the Reed and Conrad (2006) study. SLI Subjects were matched with NA peers based on chronological age, gender, first language (Australian English), SES (middle SES), and nonverbal IQ (NVIQ). All SLI subjects met the requirements of commonly known inclusionary and exclusionary criteria for SLI. As determined by multiple norm-referenced tests, none of the NA adolescents demonstrated language impairment. The narratives elicited by *Frog, Where are you?* were transcribed orthographically and verbs were analyzed similarly to the Reed and Evernden (2001) study.

Similar to the results found in the Reed and Evernden (2001) study, (Reed & Conrad, 2006; Reed & Patchell, 2004; Reed et al., 2006) a majority of the errors for the SLI group were with the irregular past tense form. The researchers also reported that tense shifting was more common in the SLI group than the NA group. The amount of tense shifting in the NA group decreased from the younger to older groups (Reed & Conrad, 2006; Reed & Patchell, 2004) . In contrast, tense shifting increased with the

older group of SLI participants. These patterns demonstrated a continuing deficit in individuals with SLI and showed limited developmental improvement in adolescence.

The studies completed by Reed and Evernden (2001) as well as Reed and colleagues (Reed & Conrad, 2006; Reed & Patchell, 2004; Reed et al., 2006) demonstrated a greater use of the progressive verb form in the language-impaired group. The increased use of the progressive form in SLI adolescents and the RD children to mark for past tense suggested that language-impaired individuals may be compensating for a deficit in the past tense form by employing the progressive tense as a substitution.

The Reed and colleagues studies (Reed & Conrad, 2006; Reed & Patchell, 2004; Reed et al., 2006) and the Reed and Evenden (2001) study found a lower overall verb accuracy rate for the adolescents with language difficulties. The trend lines for verb accuracy in all of the studies produced similar, flat slopes that represented a persistent deficit from childhood to adolescence, thus suggesting that individuals with language difficulties do not master verbs at the same rate as their NA peers. This finding matches the findings of (Rice et al., 1998) that tense marking morphemes are not mastered by language-impaired individuals at the same rate as their NA peers.

Narratives

One of the contributing factors to the lack of information about adolescents with SLI is the relative limited number of assessments available in this age range (Wetherall et al., 2007). As suggested in the study conducted by Rice (2009), language tasks that work well for children may be too easy for adolescents, including those affected with SLI.

And, as Lahey (1990) described, tasks often need to challenge an individual's language skills in order for an impairment to be revealed. Therefore, it may be beneficial to use more challenging methods of assessment if researchers aim to examine verb morphological abilities in the understudied group of adolescents with SLI.

A narrative task can often put sufficient demands on language ability to push or stress an individual's language performance (Reed, 2012). By challenging the language system, weaknesses are more likely to reveal themselves, thus aiding in the impairment identification process in adolescents. According to a study conducted by (Owen, 2010) syntactic difficulty decreases use of morphology for all children, thus exposing weaknesses. Similarly, in a study on various types of elicitation of discourse used to investigate syntactic development in adolescents with SLI, the researchers concluded that discourse tasks used with adolescents should be cognitively more demanding than casual conversation to reveal syntactic weaknesses (Nippold, Mansfield, Billow, & Tomblin, 2009). Wetherall's (2007) research on narrative tasks also promoted the effectiveness of narratives to obtain information about the language system of adolescents with SLI. By employing narratives, researchers are able to observe the many interactive components of the language system at work in a natural setting as both children and adolescents frequently use narratives in their everyday communication.

Narratives tend to facilitate the use of past tense marking by requiring the speaker to recall past events, thus making them a useful tool in examining verb morphological patterns. Because past research has suggested that individuals with SLI tend to struggle with past tense marking of verbs when compared to their NA peers (L. Leonard et al., 2009; Rice & Wexler, 1996; Rice et al., 1995) narratives are considered a valuable

assessment option for examining verb morphological patterns in older children and adolescents with SLI due to their likelihood of eliciting.

While narratives may be considered a valuable task for assessing the language abilities of adolescents with SLI, it is possible to note that all narrative tasks may not be equal in the verb morphological performance they elicit. It is possible that different narrative tasks elicit stronger or weaker narratives from adolescents. In the study conducted by Nippold (2008), the difference between expository discourse and personal narratives were examined in order to judge the effects that both types of discourse methods have of the syntactic performance of SLI and NA adolescents. The results indicated that the two tasks elicited differences in the expository they produced. Compared to the conversational task, the expository task was shown to reveal a difference in the syntactic development between the SLI and NA adolescents. The researchers hypothesized that the discrepancy between the two tasks may be due to the conversational task allowing greater freedom in the responses given whereas the expository discourse task forced more complex language use.

Wetherall (2007) conducted a similar study to those conducted by Reed and colleagues (Reed & Conrad, 2006; Reed & Patchell, 2004; Reed et al., 2006) comparing the differences in the narratives produced between the SLI group and the NA group. Researchers once again noted that different narrative tasks produced differences in narratives as well as different language characteristics. As predicted, SLI adolescents performed below the level of their NA peers on both tasks; however, the patterns of difficulty they exhibited varied between tasks. Furthermore, the SLI adolescents

demonstrated more errors with the story-telling task, which may be due to the opportunity to choose less complex language.

Both Nippold (2008) and Wetherall (2007) demonstrated that different tasks elicit different types of language patterns from adolescents with SLI, therefore presenting an issue with validity in the assessment process. Although Reed and colleagues (Reed & Conrad, 2006; Reed & Patchell, 2004; Reed et al., 2006) have employed the use of story telling narrative tasks in order to examine morphological deficits in adolescents with SLI, it is critical that the same deficits are revealed when a different narrative task is employed in order to accurately determine the verb morphological patterns of adolescents with SLI.

Reed and Huber (2011) examined if different narrative tasks lead to different results with regard to verb morphology patterns of adolescents with and without SLI. The participants were the same adolescents as in the Reed and Conrad (2006) study. The participant pool consisted of 24 adolescents, 12 with SLI and 12 NA, with ages ranging from 14;11-16;11 years. One narrative task asked the participants to look at one of two pictures and tell a story about the picture. The contrasting narrative task was the "Frog, where are you" task used in the Reed and Conrad (2006) study. The researchers concluded that the two different narrative tasks produced different patterns of verb morphological patterns for both the SLI and NA adolescents. Furthermore, the "Frog, where are you" narrative task was found to elicit more verb morphological errors in SLI adolescents. While it is suggested that the FROG task is more effective at gathering information on morphological deficits in older adolescents with and without SLI, it is unknown whether or not this method would elicit the same results from younger adolescents.

Purpose of the Current Study

The purpose of this study is to explore whether the narrative elicitation tasks used in the Reed and Huber (2011) study of older adolescents would produce different or similar patterns of verb morphology in younger adolescents with and without SLI. The results of this study will contribute to the findings provided by Reed and Huber (2011) as well as help to establish guidelines for narrative elicitation tasks that will more accurately assess the verb morphological patterns of adolescents with SLI.

Methodology

Similar to the Reed and Conrad (2006) study and Reed and Huber (2011), this study used the narratives samples collected by Patchell (2008) in his dissertation on the differences in discourse between SLI and NA adolescents. The research was conducted under the approval of the Human Research Ethics Committee at the University of Sydney. The results of this study can be directly contrasted to the Reed and Conrad (2006) and Reed and Huber (2011) studies. The following sections describe the participants observed in this study as well as the methods used for data collection. For comparison purposes, this study uses a younger age group of adolescents to replicate the methods used by Reed and Conrad (2011).

Participants

In total, twenty-four adolescents participated, with 12 being labeled SLI and 12 being labeled NA. The adolescents were pair-matched based on nonverbal IQ (NVIQ), chronological age (CA), gender, and socio-economic status (SES). The ages of the SLI adolescent group ranged from 12;0-14;2 (years; months) with the average mean age being 12;5. The NA adolescents ranged in age from 12;0-14;1 years with the average mean age being 12;5. Both groups contained eight females and ten males. Each adolescent in the SLI category met the requirements for the inclusionary and exclusionary criteria for SLI. Data for each adolescent can be found on (TABLE).

The participating adolescents were enlisted from 18 Catholic schools in the state of New South Wales in Australia. The researcher (Patchell, 2008) used the schools' electronic databases, student files and recommendations from the educational

professionals in order to gather the participants used in this study. The parents/guardians of the potential participants were then mailed a questionnaire in order to determine their child's eligibility for the study.

The questionnaire provided researchers a chance to find adolescents that possessed risk factors for language issues that could cause impairment in the language ability of the adolescents, all but limited to prenatal exposure, prematurity, limited language exposure growing up, continuous health issues, and mother's health during pregnancy. These issues maintain consistency with definitions of both SLI and normal language learners. The questionnaire also provided the researchers with information about the adolescent's history of speech, language, learning and reading problems. All NA adolescents that demonstrated a history with the aforementioned issues were excluded from the study. Additionally, any NA adolescent who possessed a family member with a history of developmental speech, language or reading problems was excluded due to the possibility of contributing hereditary components in SLI (Reed, 2012).

Any hearing issues or history involving hearing issues identified in the questionnaire automatically eliminated the adolescent from participating in the study. Each adolescent was checked for a history of otitis media (ear infections) as this could be a contributing factor in preventing language learning.

Various other factors were used when determining participant eligibility in this study. Previously unmentioned exclusionary criteria included a history of autism spectrum disorder, emotional, psychiatric or behavioral disorders, attention deficit/hyperactivity disorders, abnormal motor/neurological development, such as

cerebral palsy, traumatic brain injury, and seizure disorders. The researchers ensured that no participant had a co-existing disorder that could affect language performance.

Each participant was required to be a monolingual native speaker of Australian English. The participants were also required to come from monolinguistic, English-speaking homes. Furthermore, all of the adolescent's parents identified as Australian-European. This information enabled the researchers to control for potential cultural and linguistic differences that may affect language performance.

If an adolescent demonstrated potential, the original researcher (a qualified SLP) tested him/her to determine and confirm eligibility for the study. Hearing screenings were conducted based on the American Speech-Language-Hearing Association's (ASHA) outlined procedures outlined in (Panel, 1997). With the help of a portable audiometer (Interacoustics Model AS7ABM), pure tones at 1000, 2000, and 4000 Hz were tested in a quiet room. If no response was given at 20dB from each ear, then a test was considered failed. The *Clinical Evaluation of Language Fundamentals-3rd Edition* (CELF-3) (Semel, Wiig, & Secord, 1995) and the *Test of Word Knowledge* (TOWK) (Wiig & Secord, 1992) were used to test for two receptive and two expressive composite scores. The researcher abided by the standard that two or more scores that are 1.25 standard deviations (SD) or below the mean are indicative of a potential language impairment (Miller et al., 2008; Tomblin, Records, & Zhang, 1996; Tomblin, Zhang, Buckwalter, & O'Brien, 2003). These scores were used to determine the adolescents eligible to be included in the SLI group. To be eligible to be included in the NA group, the adolescents were required to achieve composite scores at or above -1SD of the mean.

The *Matrices* and *Vocabulary* subtests of the *Kaufman Brief Intelligence Test* (K-BIT) (Kaufman & Kaufman, 1983) were administered to each potential participant. Since SLI is defined as a deficit in language rather than intellectual ability (L Leonard, 1998), adolescents who scored less than 1SD below the mean, an 85 on the NVIQ measuring *Matrices* subtest were excluded from the study. The participants that qualified for the NA group were qualified through their scores on the *Matrices* and *Vocabulary* subtests. Each NA adolescent scored within 1SD of the mean, with every score above 91.

The original researcher succeeded in pair matching the adolescents within 6 months of age. As differences have been observed in the language abilities of males and females (Reed, 2012), the researcher took precautions by matching adolescents based on gender. The *Matrices* subtest of the K-BIT provided information that allowed the researchers to match the NVIQ of the pairs. The researcher originally aimed to match the NA and SLI scores within 15 points of one another, in order to match the standard deviation, but ten of the 18 pairs failed to meet this criterion. The pairs that did not meet this criterion demonstrated a 17-30 point difference between the two scores, with SLI adolescents having the lower score. Lastly, participants were pair matched based upon their SES, as determined by the Australian Bureau of Statistics (ABS) Census Population and Housing, which was 1996 data. To determine this score, the ABS developed a numerical value representative of each adolescent's SES by taking into account each respective residential area's income levels, employment rates, and blue collar/white collar job distributions. STD DEV. OF SES VALUES AND COMPARING BETWEEN SLI AND NA GROUP?

Procedures

The original researcher used a procedure that offered the adolescents one of two pictures that elicited a narrative. The two pictures, featured in (Appendix A), were previously used in the research conducted by Hughes (1998) in order to determine the effects of different narrative elicitation tasks. The first picture contains two people and a cat siting in a tree house. They are holding a water balloon above a man mowing the lawn underneath them. The second picture features a concerned looking woman reading off of a piece of paper to a girl shown covering her eyes. Every pair of matched adolescents only viewed one of the pictures, with the pictures being randomly and evenly distributed between all of the matched pairs. The researcher gave each adolescent their assigned picture and instructed:

> "Look at this picture. I would like you to make up a long story about it. Don't just describe the picture but make up a story about it. When you have finished, say, 'The end'."

The adolescents then told stories that matched up with their assigned pictures. In order to record each narrative, the researcher used a Sony Model ECMT145 microphone and a Sony Model MZ-R50 Minidisc Recorder with either TDK MD-74 or Sony MDW-74 minidiscs to record the narrative of each adolescent. The researcher transferred the recordings to audiocassettes in order to be transcribed. The personal information of each participant was removed from the recordings in order to protect the privacy and identities of the individuals.

While also possessing a background of profession court reporting, the transcriber had previous experience transcribing the language of adolescents with and without language issues. The transcriber used a Sanyo Memo-scriber Model TRC9010 that allowed for control of the cassettes while they were orthographically transcribed with a standard word processor. According to the transcriber, the tapes presented no transcription issues.

Standard English guidelines were abided by for orthographic transcriptions as well as a protocol designed by Strong (1998) that gave specific step-by-step instructions. The transcriber was given practice tapes unrelated to the study in order to practice following the transcription guidelines. This helped to make certain that any variations in the transcript would be accredited to the adolescents. The researcher and transcriber compared their transcriptions and obtained a 98% word-to-word agreement. These results demonstrate a reliability of the transcriptions used.

Verb Classification and Microanalysis

By using the transcriptions, the current researcher was able to read through each narrative and identify each verb and the type of verb. The template used for the classification of the verbs was adapted from the Reed and Evernden (2001) study and later revised in the Reed and Conrad (2006) study, found in Appendix B. New verb categories were added to accommodate for a greater range of verb types that occurred in the current study.

During classification, the researcher determined whether the verb was correct or incorrect by judging the verb based off of the intended use in the particular context. If an

adolescent produced the sentence, “I eat three apples yesterday” then the verb “eat” would be marked as an incorrect irregular past tense verb because that would have been the appropriate use of the verb in that particular sentence. Cultural differences were also taken into consideration when determining correctness of verbs.

Tense patterns were observed based upon the main verb in each independent clause and this contributed to how the researcher determined if the verb was correct or incorrect in the context given. A tense shift was defined as a shift in tense from the previous utterance that lasted for two or more consecutive utterances. Differences in tense were not considered tense shifting in dependent clauses, such as in the sentence, “As I said, it is important that you did your homework”, where the irregular past tense verbs “said” and “did” and the present tense copula “is” do not affect the tense pattern in the overall utterance. Changes in the tense pattern that affected the overall sentence, such as, “After I played soccer I eat dinner” where the present tense verb “eat” does not match the previous referent “after” or the regular past tense verb “played”, were marked as incorrect in the particular context. This demonstrates the classification of verbs based off of their intended use. Future tense verbs were marked as the modal form in the classification and due to their infrequent occurrence, were not considered tense shifting for evaluation purposes. The number of tense shifts was recorded for each transcript, as well as the pattern of the shift, for example, past to present or present to past.

The researcher went through and analyzed all verbs and tense shifts multiple times in order to increase accuracy. Before the being able to classify the verbs from the language samples used in the study, the researcher’s supervisor provided the researcher with 24 practice transcripts from a similar study to allow the researcher practice in verb

classification. For purposes of ensuring accuracy, the researcher was paired with a doctoral student who reviewed each practice analysis the researcher completed and worked out any disparities in opinion. The same process was then repeated with the researcher and the supervisor for the present study. Before the final analysis was made, the researcher and her supervisor came to an agreement on each verb. The researcher made sure to maintain consistency in the method of verb classification. The verb classification rules can be found in (Appendix C).

To enhance the reliability of the classification, intra-rater and inter-rater checks were done upon the completion of the verb analysis. The researcher's supervisor was responsible for the inter-rater reliability check. The intra-rater reliability check occurred six to seven weeks after the initial analysis in order to ensure that verbs were not being scored based off of memory from the original scoring. For the inter-rater reliability check, the second rater, this being the supervisor, completed her analysis approximately four months after the last discussion with the researcher regarding verb classification. Eight transcripts were randomly selected from a total of 24, with four from the SLI group and four from the NA group. Both the researcher and her supervisor used the same procedure used in the initial analysis of the verbs during the inter- and intra-rater reliability checks. In order to enhance the reliability, the researcher and the researcher's supervisor were blind to each other's scoring as well as the original scoring. For intra-rater reliability, the researcher used the first analysis as the standard to compare the second verb analysis. The intra-rater agreement for the analysis of verbs was 93%. For the purposes of the inter-rater agreement, the researcher compared her supervisor's analysis to that of the researcher's analysis, which was considered the standard. The

inter-rater reliability appeared to be 91%. These reliability procedures aided in ensuring the confidence in the overall accuracy of the final verb classification analysis.

Results

Current Study

The NA group used a total of 3439 words, compared to the 1915 total number of words used by the SLI group. Consistent with the rules used in the Conrad (2006) study, the guidelines for counting words can be found in (Appendix C). The word count difference between the two groups was 1524, with the SLI group using 44.3% fewer words than the NA group. The mean number of words per narrative for the SLI group was 106.39 (SD=60.51), and the mean for the NA group was 191.06 words (SD=100.37). An unpaired, one-tail *t-test* was used in order to determine the statistical significance between the difference in the number of words used by the SLI and NA groups. Results were t (34) =3.06, p = 0.002, which is statistically significant at the 95% confidence level. In order to be consistent with findings about language-impaired adolescents, a one-tailed t-test was chosen due to the results from Huber's study (Reed & Huber, 2011) that adolescents with SLI produced shorter and less complex narratives than their NA peers. The fewer words used by the SLI adolescents in the current study indicated that their narratives were also shorter than the NA adolescents. The individual narratives of the NA group also demonstrated a greater range in number of words, with the number of words in each narrative ranging from 75 to 330. The number of words used in the individual narratives of the SLI group ranged from 51 to 219.

To account for the difference in overall words use, many of the subsequent results are given in percentages for each group. The analysis used was consistent with the research of Reed and Huber (2011) in examining the effects of a narrative tasks on the narratives produced by adolescents with and without SLI.

Verb Usage

Analysis of the transcripts revealed that the NA group used more verbs compared to the SLI group. This finding is consistent with the difference in length (number of words) of the narratives between the two groups. Collectively, the NA group used a total of 586 verbs, ranging from 10 to 88 per transcript. This resulted in an average of 32.6 verbs per transcript. In contrast, the SLI group used a total of 290 words, ranging from 6 to 44 per transcript. As a whole, the SLI group used an average of 16.1 verbs per transcript. However, taking into account the greater number of words used by the NA group, the verb-to-word percentages revealed a 2% difference between groups. For the SLI group, 15.2% of their total words were verbs, whereas the NA group had 17.2% of their total words as verbs.

With regards to the possible classifications of verbs, the SLI group used a total of 28 of the 53 possible classifications. The NA group used a total of 33 of the classifications. The full Verb Classification Table is shown in Table 2. Table 3 presents a condensed version of the original table, with collapsed classifications for categories of verbs used infrequently and others that did not affect interpretation of patterns of use, such as uninflected present tense verbs, (e.g. first person singular and third person plural), contractions, and negations. There was a total of 25 classifications left upon the collapsing, as displayed in Table 3, Collapsed Classifications.

Table 2. VERB CLASSIFICATION TABLE	SLI TOTAL	NA TOTAL
Regular Past -ed	49	90
correct	49	90
incorrect	0	0
Irregular Past Tense	94	158
correct	89	157
incorrect	5	1
Copula Contract (Present Tense)	0	0
correct	0	0
incorrect	0	0
Copula Uncontract (Present Tense) (am/are)	5	1
correct	5	1
incorrect	0	0
Copula Contract (Present Tense) 3rd Person Singular	5	5
correct	5	5
incorrect	0	0
Copula Uncontracted (is) (Present Tense) 3rd sing.	8	0
correct	8	0
incorrect	0	0
Copula Uncontracted (Past Tense)	22	83
correct	20	82
incorrect	2	1
Copula+ negative contract (Past Tense) eg wasn't	3	10
correct	3	9
incorrect	0	1
Copula+ negative contract (Present Tense) eg isnt	0	0
correct	0	0
incorrect	0	0
Auxiliary "be" Uncontracted + ing (Pres Prog) (am/are)	0	2
correct	0	2
incorrect	0	0
Auxiliary "be" Uncontracted + ing (Pres Prog) 3rd Person Sing	3	1
correct	3	1
incorrect	0	0
Auxiliary "be"+ing Contracted (Present Prog) (am/are)	0	3
correct	0	3
incorrect	0	0
Contract. Aux. "be" + -ing (pres prog.) 3rd Person Sing.	1	5
correct	1	5
incorrect	0	0
Modal+MV	9	32
correct	9	32
incorrect	0	0
Modal (contracted)+ MV	1	13
correct	1	13
incorrect	0	0

Modal+ Neg. + MV	1	8
correct	1	8
incorrect	0	0
Modal+ Aux + MV	0	0
correct	0	0
incorrect	0	0
Auxiliary "do" (Present)+ MV(inc. opt. del. Of MV) (eg "do")	0	0
correct	0	0
incorrect	0	0
Auxiliary "do" (Past)+ MV(inc. opt. del. Of MV) (ed "did")	1	1
correct	1	1
incorrect	0	0
Auxiliary "do"(Past)+ Negative+ MV	2	26
correct	2	26
incorrect	0	0
Auxiliary "do" (Present)+ Negative+ MV (inc. opt. del. Of MV)	0	3
correct	0	3
incorrect	0	0
"be" (Present)+ Past Participle (passive)	0	0
correct	0	0
incorrect	0	0
"be" (Past)+ Past Participle (passive)	1	0
correct	1	0
incorrect	0	0
"get" (Present)+ Past Participle (passive)	0	0
correct	0	0
incorrect	0	0
"get" (Past)+ Past Participle (passive)	0	2
correct	0	2
incorrect	0	0
Verb Omitted	1	1
correct	0	0
incorrect	1	1
Auxiliary "have" (Present)(Uncontract)+ Past Participle	0	1
correct	0	1
incorrect	0	0

Table 2 continued	SLI TOTAL	NA TOTAL
Uncontract. Aux. "be" + -ing (past prog)	22	26
correct	22	26
incorrect	0	0
Contract. Aux. "be" + -ing (past prog)	0	0
correct	0	0
incorrect	0	0
Infinitive Verb	25	54
correct	25	54
incorrect	0	0
Infinitive w./Oblig. Del. Of "to"	0	0
correct	0	0
incorrect	0	0
Imperative	1	8
correct	1	8
incorrect	0	0
3rd Person Singular	6	3
correct	6	3
incorrect	0	0
Gerund	7	7
correct	7	7
incorrect	0	0
Present Participle (-ing)	5	8
correct	5	8
incorrect	0	0
Past Participle	5	6
correct	5	6
incorrect	0	0
Modal+ Optional Del. Of MV	0	1
correct	0	1
incorrect	0	0
Modal+ Neg (Contracted) +Opt. of MV	0	0
correct	0	0
incorrect	0	0
Modal+ Neg (Uncontracted) +Opt. of MV	0	0
correct	0	0
incorrect	0	0
Main Verb Uninflected (present, excluding 3rd P. sing)	5	15
correct	5	15
incorrect	0	0
Auxiliary "have"(Present)(Contract)+ Past Participle	0	0
correct	0	0
incorrect	0	0
Auxiliary "has" (Present)(Uncontract)+ Past Participle	1	1
correct	1	1
incorrect	0	0

Auxiliary "has"(Present)(Contract)+ Past Participle	2	0
correct	2	0
incorrect	0	0
Auxiliary "had" (Past)(Uncontract)+ Past Participle	2	13
correct	1	13
incorrect	1	0
Auxiliary "had" (Past)(Contract)+ Past Participle	1	2
correct	1	2
incorrect	0	0
Auxiliary "has" (Present)+ "been"+past participle (passive)	0	0
correct	0	0
incorrect	0	0
Auxiliary "had" (Past)+ "been"+ past participle (passive)	1	1
correct	1	1
incorrect	0	0
Auxiliary "have" (Present)+ "been"+ Present Participle	2	0
correct	2	0
incorrect	0	0
Auxiliary "had"(Past)+ "been"+ Present Participle	0	1
correct	0	1
incorrect	0	0
BE (Present)+ "be/"get"-ing+ Past Participle (Passive)	0	0
correct	0	0
incorrect	0	0
BE (Past)+ "be"/"get"-ing+ Past Participle (Passive)	0	0
correct	0	0
incorrect	0	0
Modal (Present)+ Aux. (be or have)+ Participle	0	1
correct	0	1
incorrect	0	0
Modal (Past)+ Aux. (be or have)+ Participle (Present/Past)	0	1
correct	0	1
incorrect	0	0
Modal (Present)+Aux. have+ be/get Past Participle)(been/got/gotten)+ Present/Past Part.	0	0
correct	0	0
incorrect	0	0
Modal (Past)+ Aux. have+ be/get Past Participle (been/got/gotten)+ Present/Past Part.	0	0
correct	0	0
incorrect	0	0
Total Verbs	290	586
correct	282	583
incorrect	8	3
Total Past Tense Verbs	198	413
correct	190	410
incorrect	8	3
Total Present Tense Verbs	39	48
correct	39	48
incorrect	0	0
Total Classifcations Used	28	33

Table 3. Collapsed Verb Classifcations and Distribution of Verb Use by Type and Accuracy	SLI TOTAL	NA TOTAL
Regular Past -ed	49	90
correct	49	90
incorrect	0	0
Irregular Past Tense	94	158
correct	89	157
incorrect	5	1
Copula (Present Tense)	18	6
correct	18	6
incorrect	0	0
Copula (Past Tense)	25	93
correct	23	91
incorrect	2	2
Present Progressive	4	11
correct	0	11
incorrect	0	0
Past Progressive	22	26
correct	22	26
incorrect	0	0
Infinitive Verb	25	54
correct	25	54
incorrect	0	0
MV uninflected+ Imperative	6	23
correct	6	23
incorrect	0	0
3rd Person Singular S	6	3
correct	6	3
incorrect	0	0
Gerund	7	7
correct	7	7
incorrect	0	0
Present Participle -ing	5	8
correct	5	8
incorrect	0	0
Past Participle	5	6
correct	5	6
incorrect	0	0
Modal + MV	11	53
correct	11	53
incorrect	0	0
Auxiliary "do" (Present) + MV	0	3
correct	0	3
incorrect	0	0

The most commonly used verb classification type for both groups was the irregular past tense. This included 32.4% of the total verbs for the SLI group and 26.9% of the total verbs for the NA group. There was a 5.5% difference between the groups with the SLI group using a higher proportion of irregular past tense verbs compared to their total verb counts. The second most frequently used verb classification for both groups was the regular past "-ed". This included 16.8% of the total verbs for the SLI group and 15.4% of the total verbs for the NA group. After calculating the sum of the irregular past and the regular past, there is shown to be a 7% difference between groups. An important factor worth noting is that the most common verb types used by both groups in this study were past tense, thus demonstrating that the narrative task encouraged past tense use.

The SLI group not only used proportionally more past tenses verbs than the NA group but they also demonstrated a more frequent use of the present copula (third person singular), the present progressive auxiliary, third person singular present, present copula (am/are), present progressive auxiliary (3rd person singular), present auxiliary + past participle, be (past) + past participle (passive). Frequency of use for this comparison was determined by the ratio of the type of verb used to the total verbs used by each group. Table 4 summarizes these data. The present copula was used by the SLI group for 6.2% of all verbs, while the NA group used the present copula for only 1.0% of all their verbs. This is a difference of 5.2%. The past progressive form was also used by the SLI group for 7.6%, while the NA group used the past progressive form for 4.4% of all verbs. This difference indicated the SLI groups used about 1.75 times more past progressive verb

forms than their NA counterparts, with the actual difference being 3.2%. Third person singular was used by the SLI group for 2.1% of the time, whereas it was used by the NA group for only .51% of the time. This results in a difference of 1.6%. Although the entire present progressive category was used more frequently by the NA group, the SLI group used the category "auxiliary "be" uncontracted + present progressive (3rd person singular) for 1.0% of all verbs whereas the NA group used the category for only 0.2% of all verbs. This makes a 0.8% difference. Lastly, the "auxiliary "has" (present)(contract)+past participle was used by the SLI group for 0.7% of all verbs and by the NA group for 0% of verbs. This accounts for a 0.7% difference. These results indicate negligent use of this category by both groups.

Table 4. Verb Forms More Frequently Used by SLI Adolescents		
VERB TYPE	**SLI**	**NA**
Present Copula	6.2%	1.0%
Past Progressive	7.6%	4.4%
Third Person Singular	2.1%	.51%
Auxiliary "be" Uncontracted + ing (Pres. Prog) 3rd person singular	1.0%	0.2%
Auxiliary "has"(Present)(Contract)+ Past Participle	0.7%	0.0%

Past and Present Tense Marking

Following the observation of the total verb usage of the two groups, the researcher further examined the tense marking patterns for each group. Table 3 shows that the SLI group used past tense forms in 198 out of their 290 total verbs. This accounts for 68.3% of their verbs. The NA group, on the other hand, used past tense verbs to account for

70.5% of their verbs, with 413 of their total 586 being accounted for. This was a difference of 2.2%.

A useful method to evaluate this difference is to add together the total verbs used by both groups and calculate the ratio of both past and present verbs used. A total of 611 (198+413) past tense verbs were used by both groups (Table 3). The SLI group accounted for 32.4% (198/611) of these past tense verbs, while the NA group accounted for 67.6% (413/611) of the past tense verbs. This is a difference of 35.2%. A total of 87 (39+48) present tense verbs were used by both groups. The SLI group accounted for 44.8% (39/87) of these verbs and the NA group accounted for 55.2% (48/87) of the total present tense verbs used. This is a difference of 10.4%. This shows a large difference, with the NA group using a higher percentage of the present tense verbs used.

After noting the difference in tense marking verb usage in terms of those marked for tense (present or past) only was examined. For the purpose of this study, the category of tense marked verbs excluded verbals, including gerunds, participles, infinitives, future tense forms, and modals. These verbs accounted for 18.3% (53/290) of the total verbs used by the SLI group and 22.0% (129/586) of the total verbs used by the NA group. The SLI group marked 81.7% (237/290) of their verbs for tense, while the NA group marked 78.7% (461/586) of their total verbs for tense. This equates to a 3.0% difference, which reflected the verbs noted above. The SLI group was shown to use a larger percent of tense marked verbs overall when compared to their NA counterparts, suggesting that the NA group used more verbals, future tense forms, and verbs with modals in the single picture narrative elicitation task. These verb forms are often considered to be among the more advanced and complex forms.

The following classifications were considered past tense: regular past, irregular past, past copula, past progressive, auxiliary "did" + main verb, "be" (past) + past participle, "get" (past) + past participle, auxiliary "had" + past participle, and auxiliary "had" + "been" + past participle (passive). When examining only tense marked verbs, the SLI group used a total of 198 past tense verbs, which accounted for 83.5% (198/237) of their tense marked verbs (Table 5). The NA group used a total of 413 past tense verbs, which accounts for 89.6% (413/461) of their tense marked verbs. This corresponds to a difference of 6.1% for percentage of past tense verbs used to mark tense, with the SLI group using less past tense verbs.

The following classifications were considered present tense: present copula, present progressive, main verb uninflected (present) and imperative, third person singular-s, auxiliary "do" + main verb, "be" (present) + past participle, "get" (present) + past participle, third person singular, main verb uninflected, auxiliary "have"/"has" + past/present participle, imperative, and "be" (present) + "be"/"get"-ing + past participle (passive). When examining only tense marked verbs, the SLI group used a total of 39 present tense verbs, which accounted for 16.5% (39/237) of their tense marked verbs. The NA group used a total of 48 present tense verbs, which accounted for 10.4%% (48/461) of their tense marked verbs (Table 5). This corresponds to a 6.1% difference for percentage of present tense verbs used to mark for tense, with the NA group using fewer present tense verbs. Figures 1 and 2 show the specific percentages of each type of present and past tense verb forms used for both the NA and SLI groups as reflected in data in **Table 5.**

Table 5. Verbs Marked for Past and Present Tense by Accuracy	TOTAL OCCURANCES		% VERBS MARKED FOR TENSE	
Verb Form Title	SLI	NA	SLI	NA
Regular Past-ed	49	90	16.90%	15.36%
correct	49	90		
incorrect	0	0		
Irregular Past Tense	94	158	32.41%	26.96%
correct	89	157		
incorrect	5	1		
Copula (Present Tense)	18	6	6.21%	1.02%
correct	18	6		
incorrect	0	0		
Copula (Past Tense)	25	93	8.62%	15.87%
correct	23	91		
incorrect	2	2		
Present Progressive	4	11	1.38%	1.88%
correct	4	11		
incorrect	0	0		
Past Progressive	22	26	7.59%	4.44%
correct	22	26		
incorrect	0	0		
Combined Progressive	26	37	8.97%	6.31%
MV uninflected (doesn’t inc. 3ps) and Imperative	6	23	2.07%	3.92%
correct	6	23		
incorrect	0	0		
3rd Person Singular	6	3	2.07%	0.51%
correct	6	3		
incorrect	0	0		
Auxiliary "do" (Past) + MV	3	27	1.03%	4.61%
correct	3	27		
incorrect	0	0		
"be" (Past)+ Past Participle (passive)	1	0	0.34%	0.00%
correct	1	0		
incorrect	0	0		
"get" (Past) + Past Participle (passive)	0	2	0.00%	0.34%
correct	0	2		
incorrect	0	0		
Auxiliary "have/has" (present) + past part	3	1	1.03%	0.17%
correct	3	1		
incorrect	0	0		
Auxiliary "had" (past, uncon.) + past part	3	15	1.03%	2.56%
correct	2	15		
incorrect	1	0		
Aux "had" (Past) + "been" + past part (passive)	1	1	0.34%	0.17%
correct	1	1		
incorrect	0	0		
Auxiliary "had" (past) + "been" + pres part -ing	0	1	0.00%	0.17%
correct	0	1		
incorrect	0	0		
TOTAL	235	461	81.03%	78.67%
Total Verbs Marked with a Past Tense Form	198	413	84.26%	89.59%
Total Verbs Marked with a Present Tense Form	37	48	15.74%	10.41%

Figure 1.

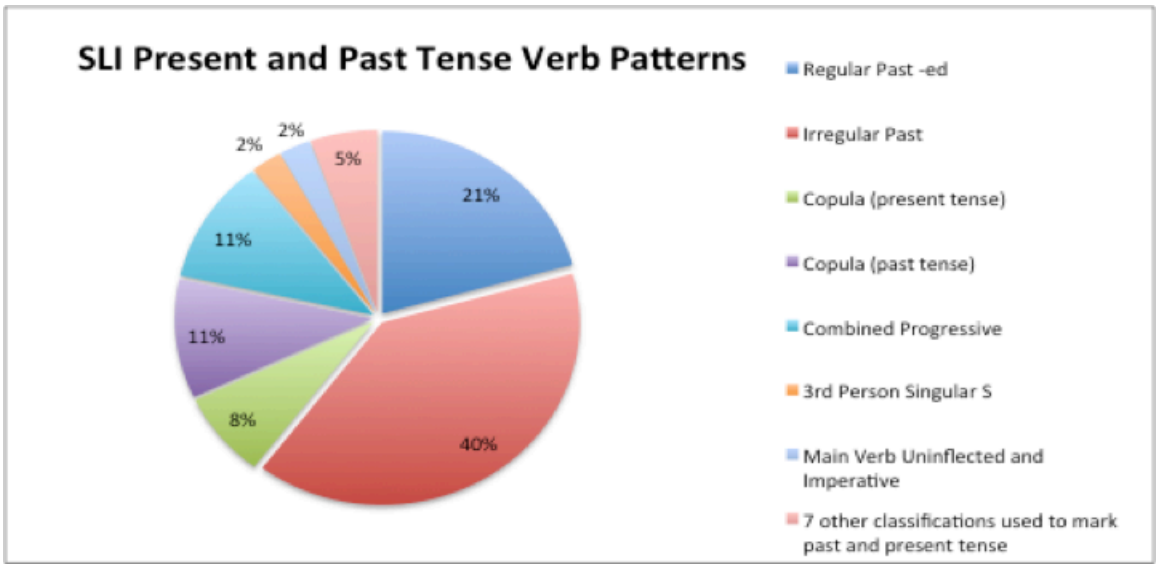
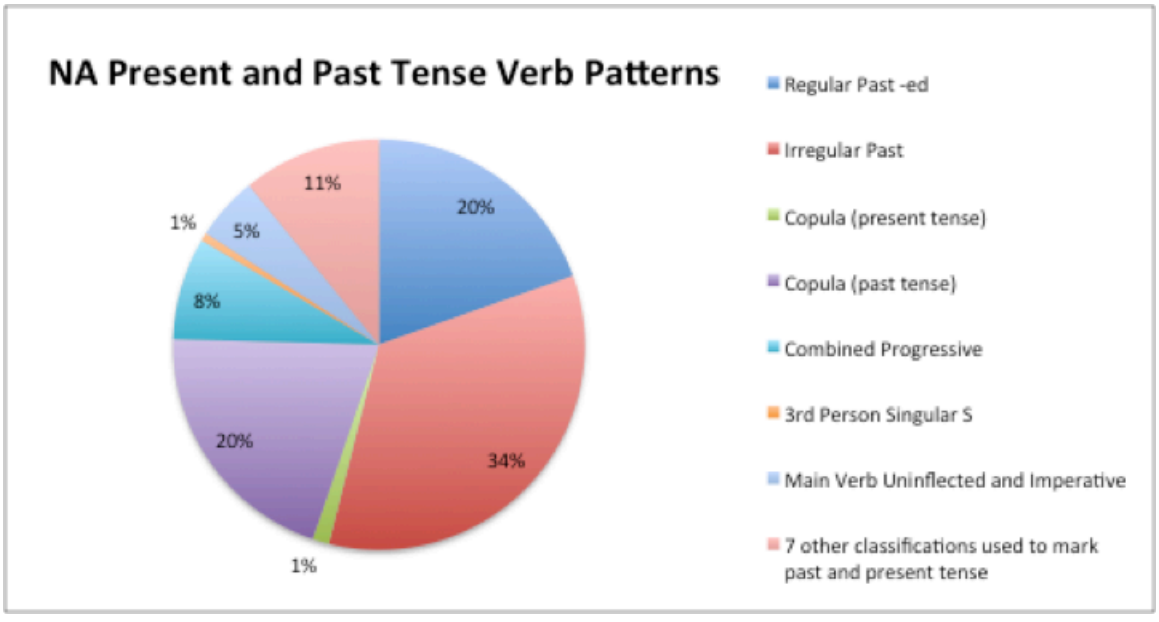


Figure 2.



The use of progressive verbs in tense marking patterns of the NA and the SLI groups was also examined. The SLI group used a total of 26, which was 9.0% of their total verbs, and the NA group used a total of 37, which was 6.3% of their total verbs. This represented an approximated 3% difference. There was a more notable difference, however, in the percentage of past and present progressive usage. Of the 26 progressive verbs used by the SLI group, 22 were past tense, which was 84.6% of their overall progressive use. Of the 37 progressive verbs used by the NA group, 26 were past tense, which was 70.3% of their progressive use. This is a difference of 14.3%. Conversely, the present tense progressives accounted for 15.4% of the SLI group's progressive verb usage and 29.7% of the NA group's progressive verb usage. Figures 3 and 4 illustrate the differences in past and present progressive use for the two groups. Although the SLI group used proportionally more present tense than past tense verbs generally, with the NA group showing the opposite pattern (more past than present tense), the pattern for past and present progressive verb use was the reverse; the SLI group used more past progressive verb forms than present progressive forms and the NA group use more present progressive forms than past progressive forms.

Figure 3.

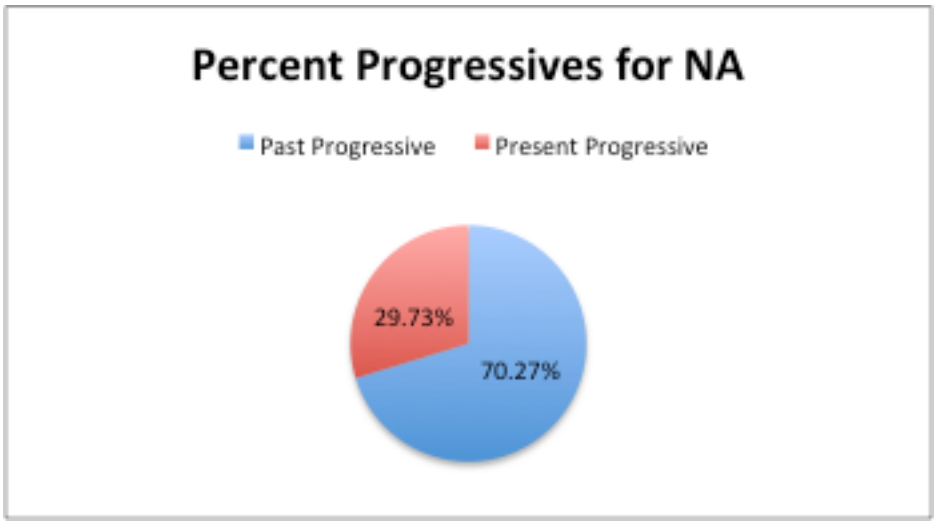
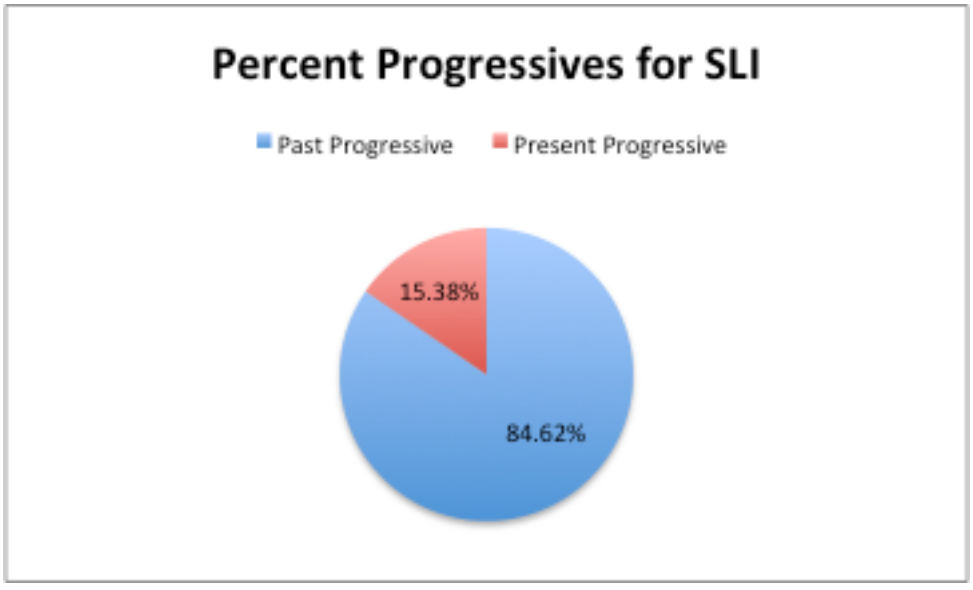


Figure 4.



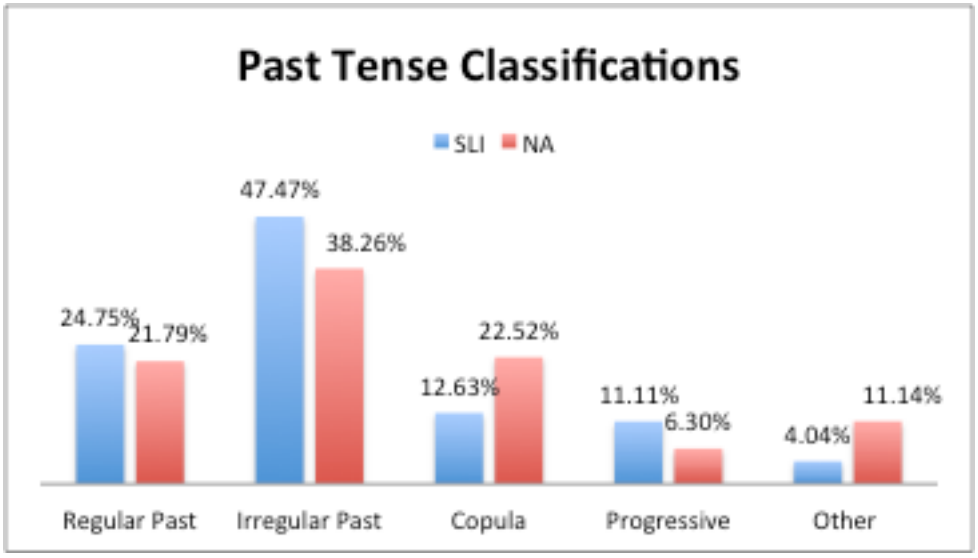
With regard to copula usage differences between the two groups, the SLI group used the past copula to mark tense for 12.6% of all verbs marked for past tense, while the NA group used the past copula to mark tense for 22.5% of all past tense marked verbs, leading to a 9.9% difference. The SLI group used the present copula to mark tense for 46.2% of all verbs marked for present tense, and the NA group used the present copula to mark tense for only for 12.5% of all verbs marked for present tense, leading to a large 33.7% difference. The present tense copula ("am", "is", "are") expresses the notion of a current status quo and is descriptive of what is happening in a picture without the concept of action, suggesting that the narratives of SLI adolescents in the single picture may have been more static and less dynamic than those of the NA adolescents in the same narrative elicitation condition. The present copula is also among the earlier developing verb forms.

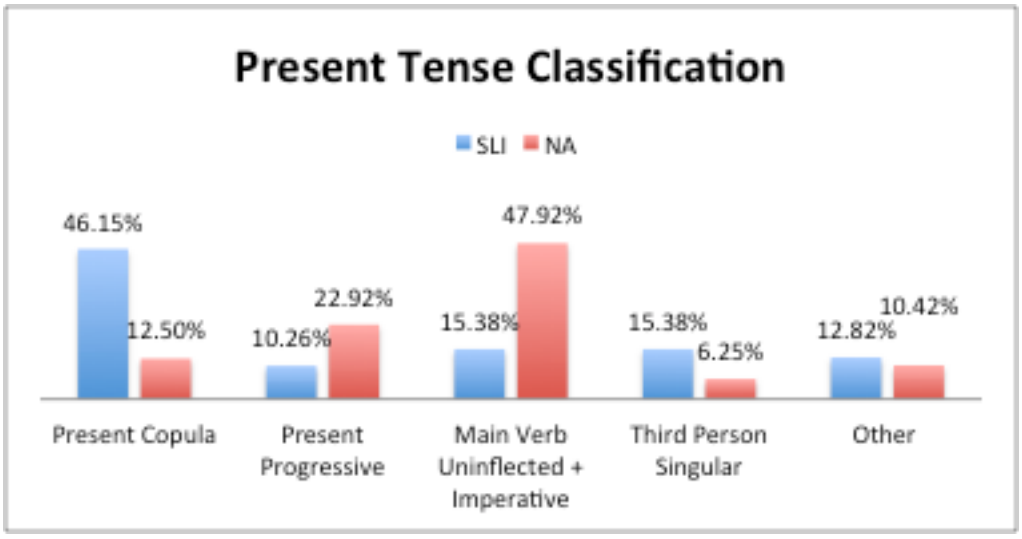
Figure 5 shows the breakdown of each past tense classification as a percentage of the past tense verbs used by both the SLI and NA groups. A difference was found between the irregular past, which comprised 47.5% of the past tense verbs used by the SLI group, and 38.3% of the verbs used by the NA group, resulting in a difference of 9.2%. A difference was also observed in the "other" category, which consisted of auxiliary "do" (past) + main verb, "be" (past) + past participle, "get" (past) + past participle, auxiliary "have" (past) + past participle, and auxiliary "have" (past) + "been" + past participle (passive). The SLI used these complex auxiliaries for 4.0% of their past tense verbs, and the NA group used these more complex auxiliaries for 11.1% of their past tense verbs, resulting in a 7.1% difference. This also suggests that the NA group was generally using more advanced and complex verb forms than the SLI group. The past progressive form was used by the SLI group for 11.1% of their past tense verbs and by

the NA group for 6.3% of their past tense verbs, resulting in a 4.8% difference. The regular past classification showed similar percentages of usage between the SLI and NA groups.

Figure 6 shows the breakdown of each present tense classification as a percentage of the present tense verbs used by both the SLI and NA groups. The greatest difference was found in the present copula category. As noted previously, the present copula comprised 46.2% of all present tense verbs used by the SLI group and 12.5% of all present tense verbs used by the NA group. This was a difference of 33.7%. The second greatest difference was found between main verb uninflected and imperative, which comprised 15.4% of the present tense verbs used by the SLI group and 47.9% of the verbs used by the NA group, resulting in a difference of 32.5%. The NA group also used a higher percentage of present progressives than did the SLI group. Also as noted previously, the SLI group, on the other hand, used a higher percentage of present copulas, third person singular, and complex auxiliaries than did the NA group.

Figure 5 & Figure 6.





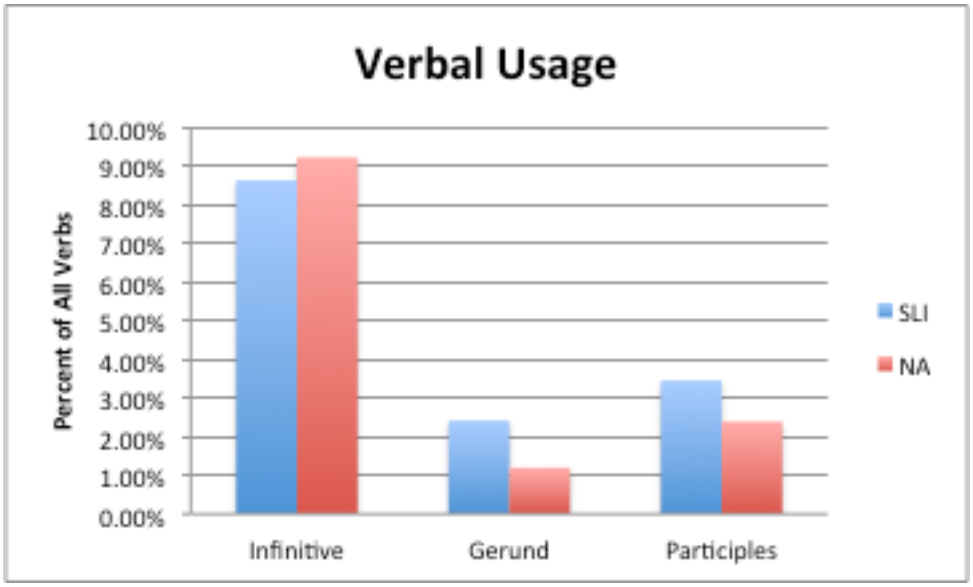
Verbs not marked for tense include verbals, which are comprised of infinitives, gerunds, and participles. Both groups used a similar proportion of verbals in their narratives, with the SLI group using verbals for 14.5% of their total verbs and the NA group used verbals for 12.8% of their total verbs. Figure 7 compares the verbal usage of both the SLI and the NA group in terms of percentages out of all verbs used. Although the SLI group used slightly more verbals than did the NA group, no notable difference was evident.

Verb Accuracy

Overall, both groups made few errors, but the SLI group made more. The SLI group had a higher error rates in their narratives than did the NA group. Of the 290 verbs used by the SLI group, eight were incorrect. This corresponds to an error rate of 2.8%. Of the 586 verbs used by the NA group, three were marked incorrect. This corresponds to an error rate of 0.51%. The difference indicates that the SLI group's error rate was approximately six times the NA group's error rate. Table 2 shows the errors of the SLI and NA groups and Table 3 shows the collapsed version.

Looking at the accuracy of each adolescent, 11 SLI and 15 NA adolescents produced 100% of their verbs correctly. The lowest score achieved by an SLI adolescent was 83% verbs correct. No NA adolescents, however, scored below 90%. In contrast, two SLI adolescents scored below the 90% accuracy level. Figure 8 shows the accuracy levels of the two groups. Although individuals in the SLI category scored over 90% for the majority of accuracy levels, the SLI individuals who made errors had an average of 90.2% accuracy. The NA individuals

Figure 7.


Verbal Usage
Percent of All Verbs
10.00%
9.00%
8.00%
7.00%
6.00%
5.00%
4.00%
3.00%
2.00%
1.00%
0.00%
Infinitive
Gerund
Participles
SLI
NA

who made errors had an average of 93.6%. The NA group demonstrated an average of overall higher accuracy. Figure 8 also shows the trend lines for another perspective of the accuracy levels of NA and SLI groups.

Table 6 presents the error rates of the SLI and NA adolescents for each classification. The most frequent verb error type for the SLI group was the irregular past tense, where five errors were made out of a total of 94 productions. This is a very common error for individuals with SLI. The NA group made only one error out of a total of 158 productions in this category. The most frequent verb error type produced by the NA group was the past tense copula. This is a common grammatical error in American English. Both the NA group and the SLI group made two errors on the past tense copula, with the NA group having 93 total productions and the SLI group having 25 total productions. The SLI group also made a single error in the "auxiliary "had" (past) + past participle" category.

Figure 9 shows the errors made by each group in terms of percentage, based upon the frequency of use of each classification. This shows both the SLI group and the NA group making the highest percentage of errors on the past tense copula, where 8.0% of the SLI group's verbs were in errors and 2.15% of the NA group's verbs were in error. For the SLI group, it should be noted that the past tense copula was not used as frequently as the irregular past tense, making the percentage for this classification higher. Therefore, it is helpful to look at verbs used more frequently. The irregular past tense errors accounted for 5.32% of all errors for the SLI group but only 0.63% of all errors for the NA group. The single error made by the SLI group in the "auxiliary "had" (past) + past participle" category accounted for 33.3% of all errors of the SLI group.

Figure 8.

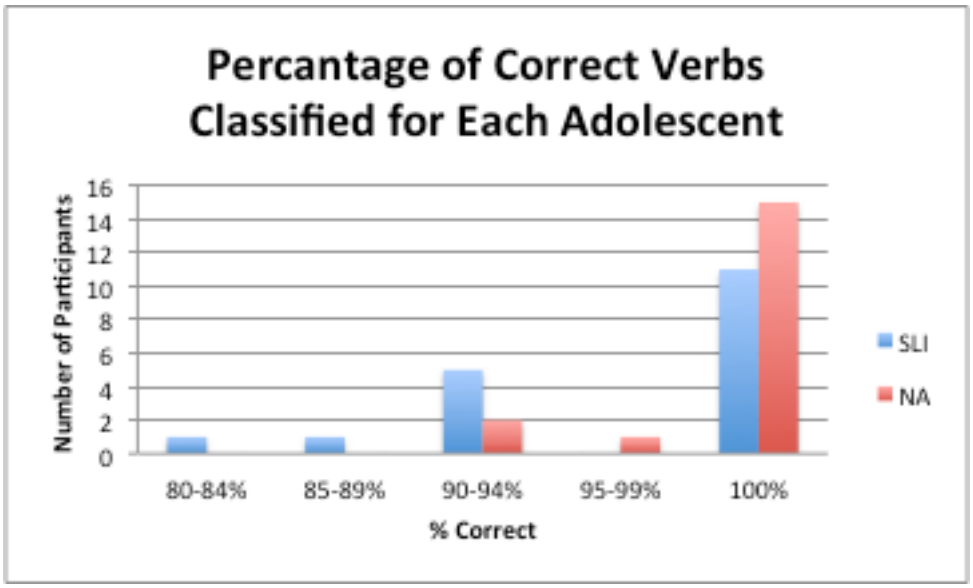


Figure 9.

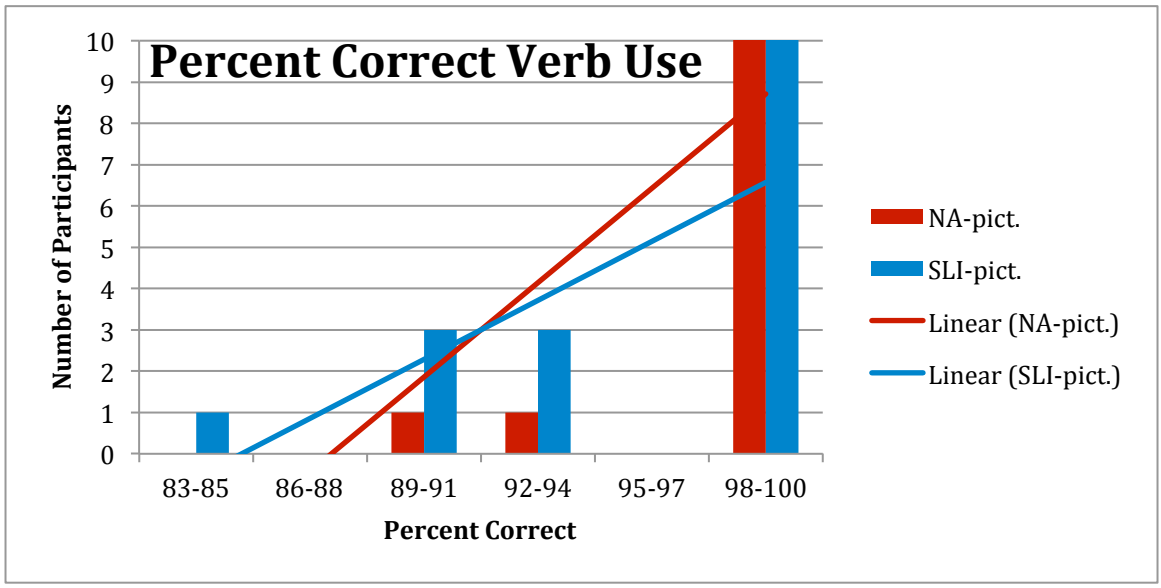
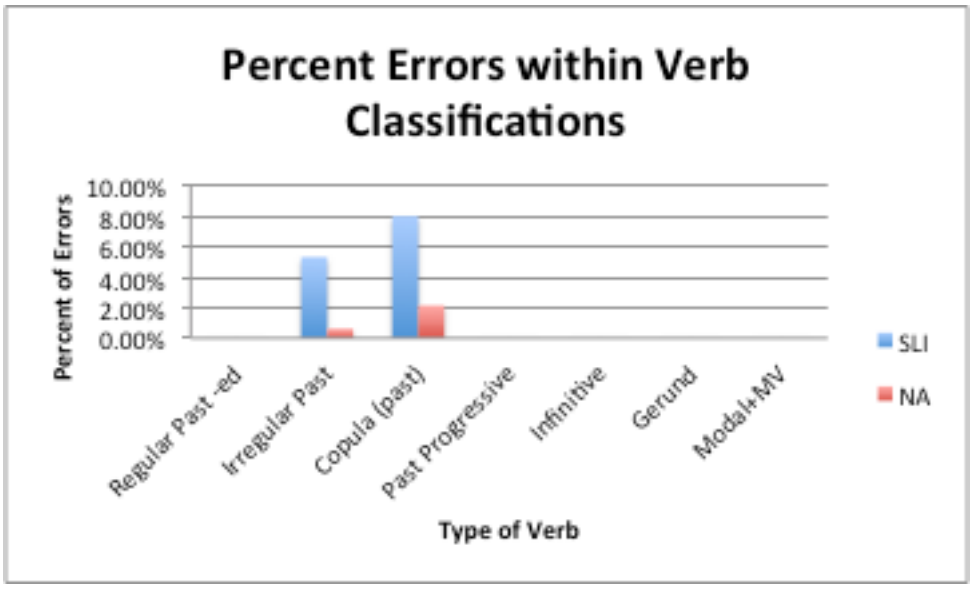


Table 6. Error Rates	# of Occurrances		% Verbs in Error (# verbs/# occurrances)	
Collapsed Classification	SLI	NA	SLI	NA
Regular Past-ed	49	90		
correct	49	90		
incorrect	0	0	0%	0%
Irregular Past Tense	94	158		
correct	89	157		
incorrect	5	1	5.32%	0.63%
Copula (Present Tense)	18	6		
correct	18	6		
incorrect	0	0	0%	0%
Copula (Past Tense)	25	93		
correct	23	91		
incorrect	2	2	8.00%	2.15%
Present Progressive	4	11		
correct	4	11		
incorrect	0	0	0%	0%
Past Progressive	22	26		
correct	22	26		
incorrect	0	0	0%	0%
Combined Progressive	26	37		
MV uninflected (doesn't inc. 3ps)	6	23		
correct	6	23		
incorrect	0	0	0%	0%
3rd Person Singular	6	3		
correct	6	3		
incorrect	0	0	0%	0%
Gerund	7	7		
correct	7	7		
incorrect	0	0	0%	0%
Present Participle (-ing)	5	8		
correct	5	8		
incorrect	0	0	0%	0%
Past Participle	5	6		
correct	5	6		
incorrect	0	0	0%	0%
Modal + MV	11	54		
correct	11	54		
incorrect	0	0	0%	0%
Auxiliary "do" (Present) + MV	0	0		
correct	0	0		
incorrect	0	0	0%	0%

(Continued)	SLI	NA	SLI	NA
Auxiliary "do" (Past) + MV	3	27		
correct	3	27		
incorrect	0	0	0%	0%
"be" (Present)+ Past Participle (passive)	0	0		
correct	0	0		
incorrect	0	0	0%	0%
"be" (Past) + Past Participle (passive)	1	0		
correct	1	0		
incorrect	0	0	0%	0%
"get" (Present) + Past Participle (passive)	0	0		
correct	0	0		
incorrect	0	0	0%	0%
"get" (Past) + Past Participle (passive)	0	2		
correct	0	2		
incorrect	0	0	0%	0%
Auxiliary "have/has"(pres.) + past part	3	1		
correct	3	1		
incorrect	0	0	0%	0%
Aux. "had" (past) + past part.	3	15		
correct	2	15		
incorrect	1	0	33.33%	0%
Aux. "has" (pres) + "been" + past part (passive)	0	0		
correct	0	0		
incorrect	0	0	0%	0%
Aux. "had" (past) + "been" + past part. (passive)	1	1		
correct	1	1		
incorrect	0	0	0%	0%
Aux. "have" (present) + "been" + pres part -ing	2	0		
correct	2	0		
incorrect	0	0	0%	0%
Aux. "had" (past) + "been" + pres part -ing	0	1		
correct	0	1		
incorrect	0	0	0%	0%
Total Verbs	265	532		
correct	257	529		
incorrect	8	3	3.02%	0.56%
Total Past Verbs	198	413		
correct	190	410		
incorrect	8	3	4.04%	0.73%
Total Present Tense Verbs	39	48		
correct	39	48		
incorrect	0	0	0%	0%
Total Classifications Used	18	18		

Figure 10.


Percent Errors within Verb Classifications
Percent of Errors
10.00%
8.00%
6.00%
4.00%
2.00%
0.00%
Regular Past -ed
Irregular Past
Copula (past)
Past Progressive
Infinitive
Gerund
Modal+MV
Type of Verb
SLI
NA

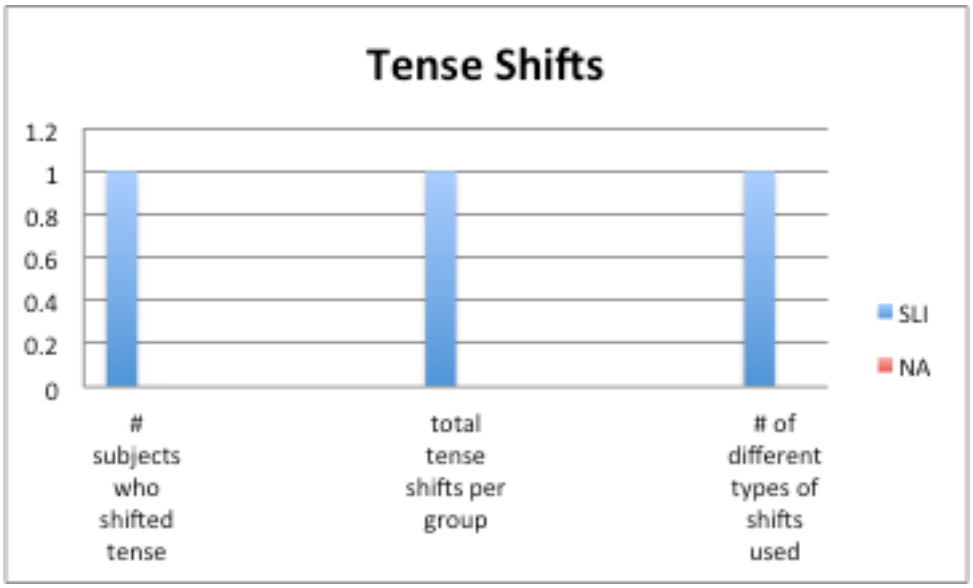
Tense Shifting

Consistent with previous studies (Reed & Conrad, 2006; Reed & Evernden, 2001; Reed & Huber, 2011; Reed & Patchell, 2004; Reed et al., 2006), a tense shift was defined as any change in tense that lasts for two or more consecutive utterances. Only one SLI adolescent demonstrated a tense shift by definition and no NA adolescents demonstrated a shift in tense. The SLI adolescent who shifted tense shifted from past to present and then continued using present tense. Figure 11 presents the patterns in tense shifting as demonstrated by the SLI and NA groups.

Comparison with "Frog, Where are You" Narrative Elicitation

The current study focused on exploring the effect of one narrative elicitation (single picture) task on the verb patterns of adolescents with and without SLI compared to verb patterns elicited by "Frog, Where are You?", the narrative task used in the studies of Reed and colleagues (Reed & Conrad, 2006; Reed & Huber, 2011; Reed & Patchell, 2004; Reed et al., 2006). This section compares the results found in this study to those found in the Reed and Conrad (Reed & Conrad, 2006) study. Since the adolescents sampled came from the database from the Patchell (Patchell, 2008) study, both studies used the same sample of adolescents. Here after, the current study will be referred to as the picture method and the narrative task used in the Reed and Conrad (Reed & Conrad, 2006) will be referred to as the FROG method.

Figure 11.


Tense Shifts
1.2
1
0.8
0.6
0.4
0.2
0
subjects who shifted tense
total tense shifts per group
# of different types of shifts used
SLI
NA

Length of Narratives

The FROG method elicited longer narratives from the adolescents than did the picture method and this was true for both the SLI and NA adolescents. With the FROG method, SLI adolescents produced a total of 4635 words. With the picture method, SLI adolescents produced 1915 words. NA adolescents produced a total of 5355 words with the FROG method and only 3439 words with the picture method. The narratives from the FROG method between 40 and 60% longer than the narratives produced from the picture method.

Related to greater length in terms of number of words, the FROG method also elicited more verbs than did the picture method. The SLI adolescents used 786 with the FROG method and only 290 verbs with the picture method. This difference in verb usage is expected due to the greater number of words used in the FROG method. The NA adolescents used 948 verbs with the FROG method and 586 verbs with the picture method. As evidenced in Figure 12, there is a considerable difference between the two methods, as the FROG method elicited more verbs and more words from the adolescents.

When verb use was compared to the total number of words, however, the differences between the two tasks were less notable. The SLI adolescents used verbs for 17.0% of their total words with the FROG method and for 15.1% of their total words with the picture method. In contrast, the NA adolescents used verbs for 17.7% of their total words with the FROG method and for 17.0% of their total words with the picture method. The FROG method elicited a higher percentage of verbs for both the NA and SLI groups. The effect of elicitation method was more pronounced for the SLI adolescents than the

NA adolescents. A comparison of verb use for both groups with both the picture and FROG method can be seen in Figure 13.

Figure 12.

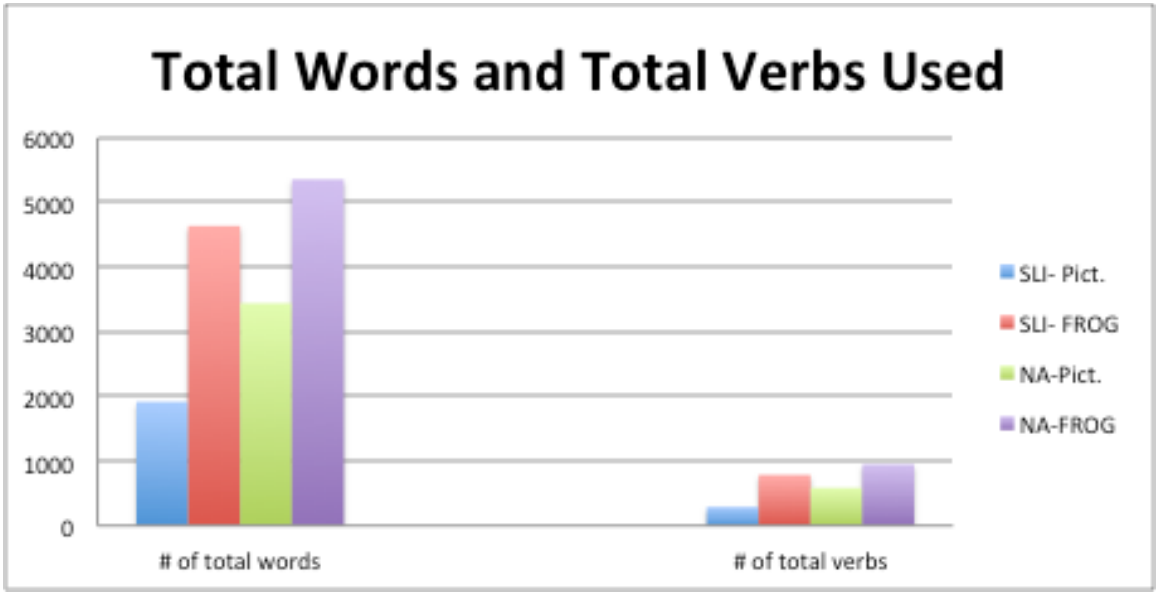
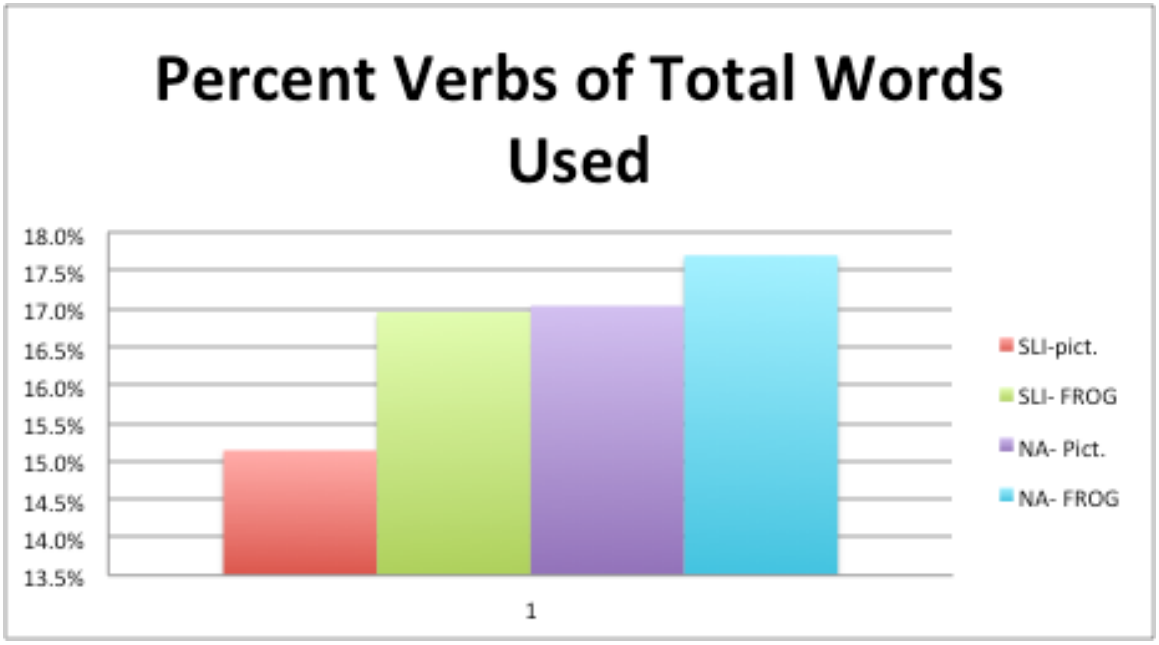


Figure 13.



Tense of Verbs in the Narratives

The FROG method showed the SLI adolescents using 87% past tense verb forms, while the picture method showed them using 84% past tense verb forms. This equates to a 3% difference in past tense verb forms between the two tasks. For the NA adolescents, the FROG method showed them marking 90% of their tense marked verbs as past tense; the picture method showed them marking 90% of all tense marked verbs as past tense. There was no difference between the NA groups amongst tasks for past tense marked verb percentages. Figure 14 illustrates the difference between past and present tense usage for the NA and SLI groups for both the picture and FROG tasks.

Figure 15 compares the percentages of verbs marked for tense in each task for both groups of adolescents. The irregular past tense was the most frequent verb form used

by all the groups. The picture method was shown to elicit higher percentages of irregular past verbs for all adolescents than did the FROG method. Furthermore, the picture method elicited more irregular verbs from the SLI group as a whole than from the NA group as a whole. There was a respective 6% difference between the SLI groups and a 3% difference between the NA groups.

The second most frequently occurring verb form across the groups was the regular past tense form. The FROG method elicited a slightly greater percentage of regular past tense verbs for the NA adolescents but equal frequency from the SLI groups. With no difference between the SLI groups and a difference of 4% between the NA groups, the FROG method shows a larger contrast for NA adolescents in its ability to elicit regular past tense verbs.

Figure 14.

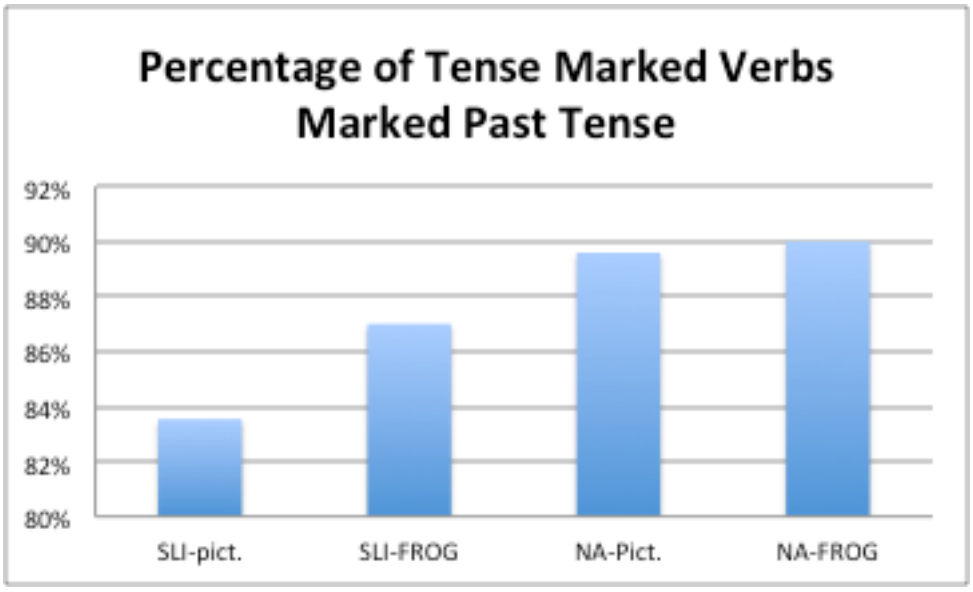
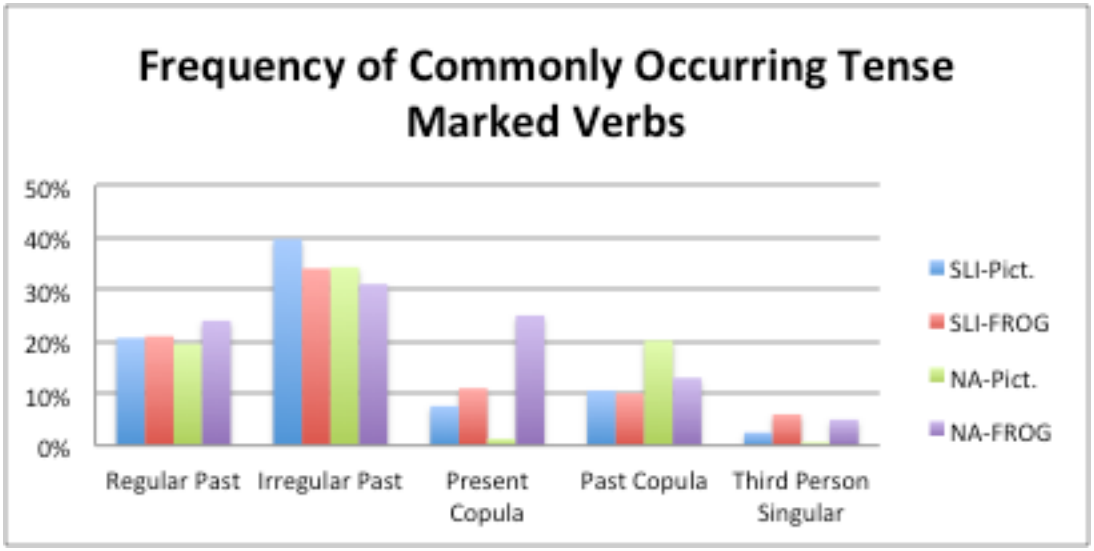


Figure 15.



The third most frequent verb form was the past copula. The picture method for both the NA and SLI group elicited more past copula form verbs than did the FROG method. There was a mere 1% difference between the SLI groups but a 7% difference between the NA groups. As expected, the NA group as a whole was shown to use a higher frequency of the past tense copula than the SLI group as a whole.

In terms of present tense, the FROG method elicited a higher percentage of the present copula and third person singular than the picture method. The FROG method elicited a notable 29% more present copulas than the picture method for the SLI and NA groups combined, and 8% more third person singulars than the picture method for the groups combined. Moreover, the SLI group produced higher percentages of third person singular verb forms, but the NA group produced higher percentages of present copulas. This comparison shows the FROG task eliciting a higher percentage of present tense

verbs for both groups, with a considerable difference only in the NA group for the present copula.

Another way to assess past and present tense marking patterns between the two groups is to observe the use of progressive verbs. Figure 16 compares the percentage of both past and present progressives used by both groups across tasks. This comparison shows the FROG method eliciting a greater frequency of both past and present progressives across both the NA and SLI groups. For the present progressive, the SLI group produced more of this verb form than did the NA for the picture task and the SLI group also used significantly more of this verb form than the NA group for the FROG task. As for past progressives, the SLI group used more of this form than did their NA counterpart, for both narratives tasks. However, the FROG task elicited a greater amount of past progressives from both the NA group and SLI group than did the picture method. The picture method showed SLI adolescents producing 9% of their tense marked verbs as past progressives, and the NA adolescents producing one-third fewer, at about 6%. In contrast, the FROG method showed a similar pattern, with the SLI adolescents producing about 12% of their tense marked verbs as past progressives and the NA group producing almost half of that, as past progressives, making up about 7% of their tense marked verbs.

As both tasks demonstrate a discrepancy in past and present tense marking, it is noteworthy to observe if this trend continued with verbals. Figure 17 compares the differences in the use of verbals (infinitives, gerunds, and participles) between the NA and SLI groups across tasks. This comparison shows that the picture method elicited about the same amount of gerunds and participles as did the FROG method. Both the SLI groups and the NA groups for both picture and FROG tasks, produced 3% or fewer

gerunds and participles in their total verbs. There is an evident discrepancy in the amount of infinitives produced, however. The FROG task elicited 6% of infinitives in both the NA and SLI groups' total verb usage whereas the picture task produced 3% more infinitives for both the NA and SLI groups, who both used infinitives as 9% of their total verbs.

Accuracy of Narratives

Further differences between tasks were observed after comparing the error rates of individuals from both of the tasks, as shown in Figure 18. The picture method showed

Figure 16.

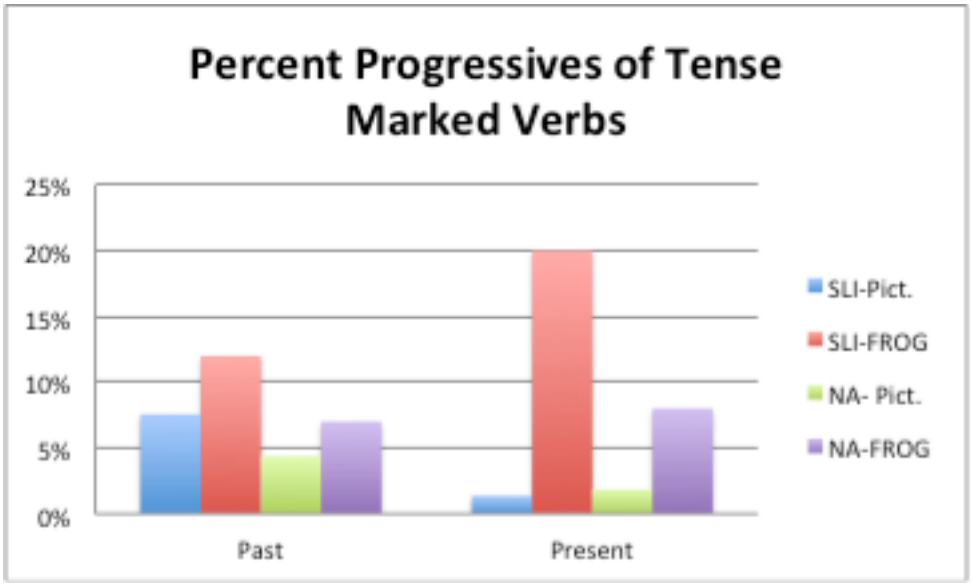
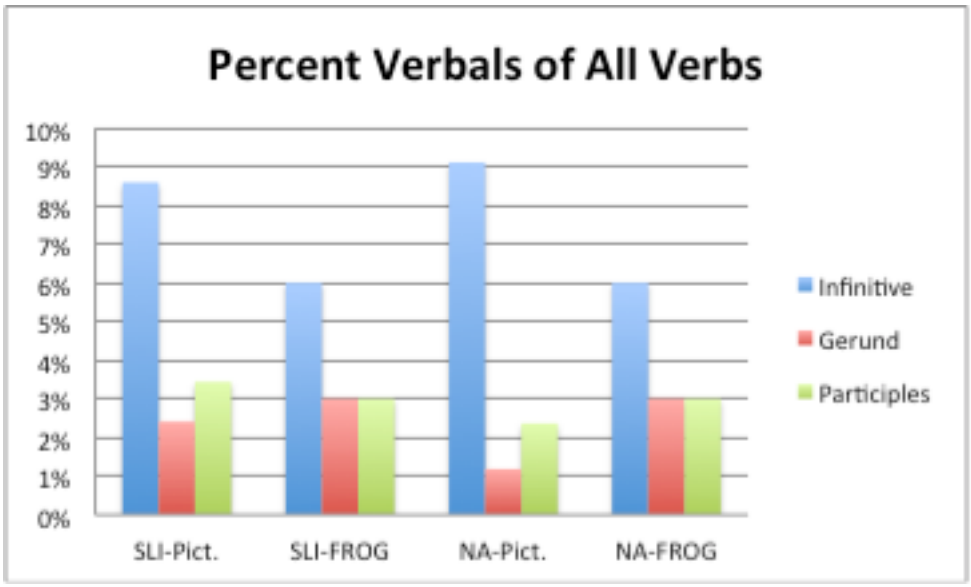


Figure 17.



the SLI adolescents producing an error rate of 3.1% and the NA adolescents producing an error rate of 0.7%. In contrast, the FROG method revealed the SLI adolescents producing an error rate of 3.3% and the NA adolescents producing an error rate of 1.1%. The FROG method produced higher error rates from both the NA and SLI adolescents than did the picture method.

By observing the number of adolescents from each group who produced one or more verb errors in their narratives, further comparisons between the two methods can be made, as shown in Figure 19. With the FROG method, 12 of the 18 SLI adolescents produced one or more errors in their narratives. With the picture method, only 7 of 18 adolescents produced one or more errors in their narratives. Figure 19 also shows more NA adolescents making errors when using the FROG method than the picture method.

Although more SLI adolescents had errors than the NA adolescents, regardless of narrative task, the difference was more pronounced with FROG narratives.

Figure 20 shows the FROG method revealing a greater difference in the overall accuracy levels between the NA and the SLI adolescent groups. Trend lines reveal the NA group who used the FROG method had the steepest slope and highest overall accuracy levels. In contrast, the SLI picture method group had the flattest slope and therefore, lowest accuracy levels. Although the differences between the two groups in their respective methods were minimal, the NA adolescents consistently produced higher levels of accuracy than the SLI adolescents.

Figure 21 compares both groups and the percentage of errors made on the most frequently occurring classifications, out of all of the verbs elicited. Although error rates were small, slight differences were observed between tasks. The regular past was produced at about the same frequency (0.0%) amongst all four groups, but the NA adolescents using the FROG task showed the highest error rate at 0.1%. For the irregular

Figure 18.

Figure 19.

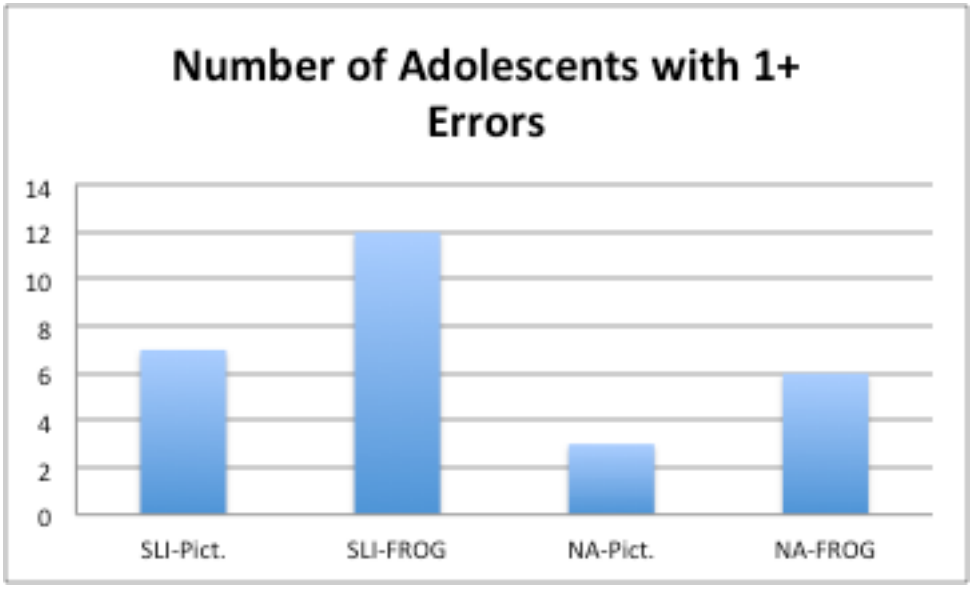


Figure 20.

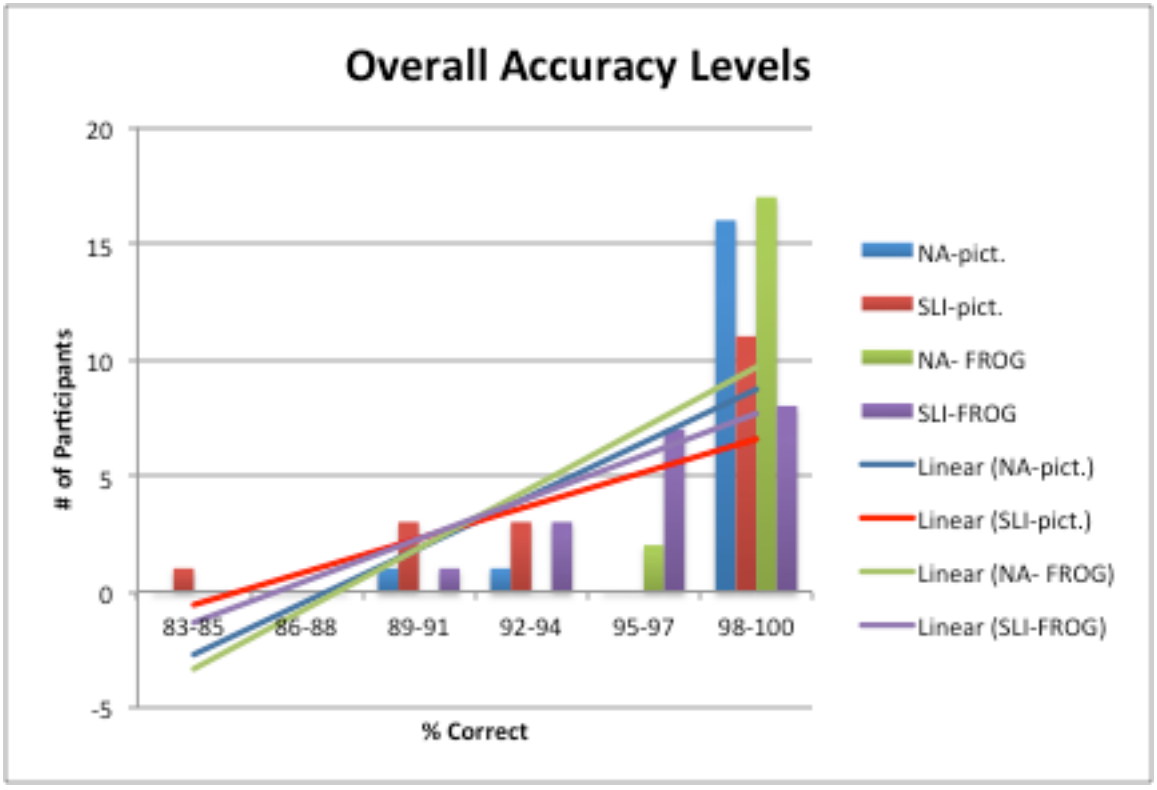
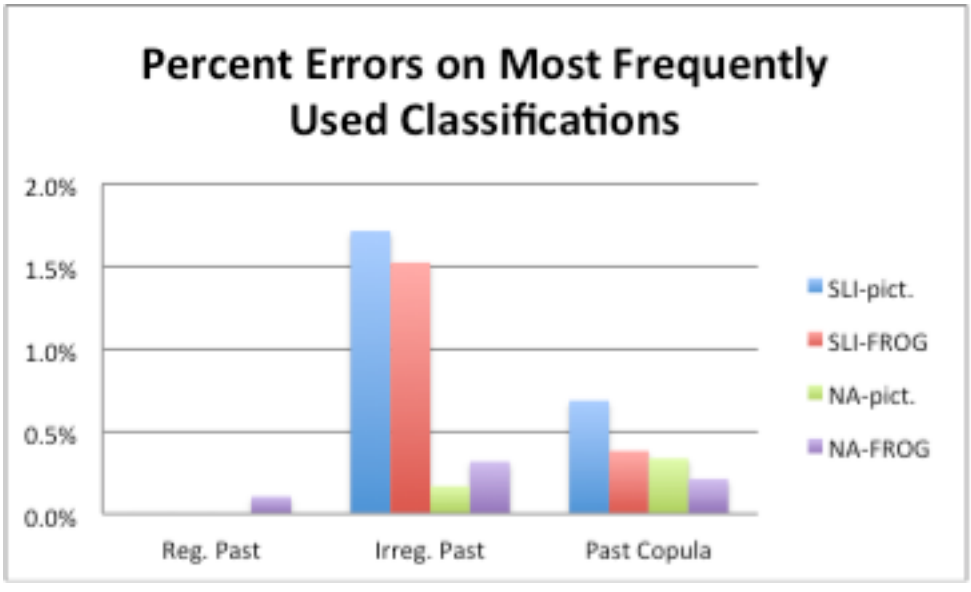


Figure 21.



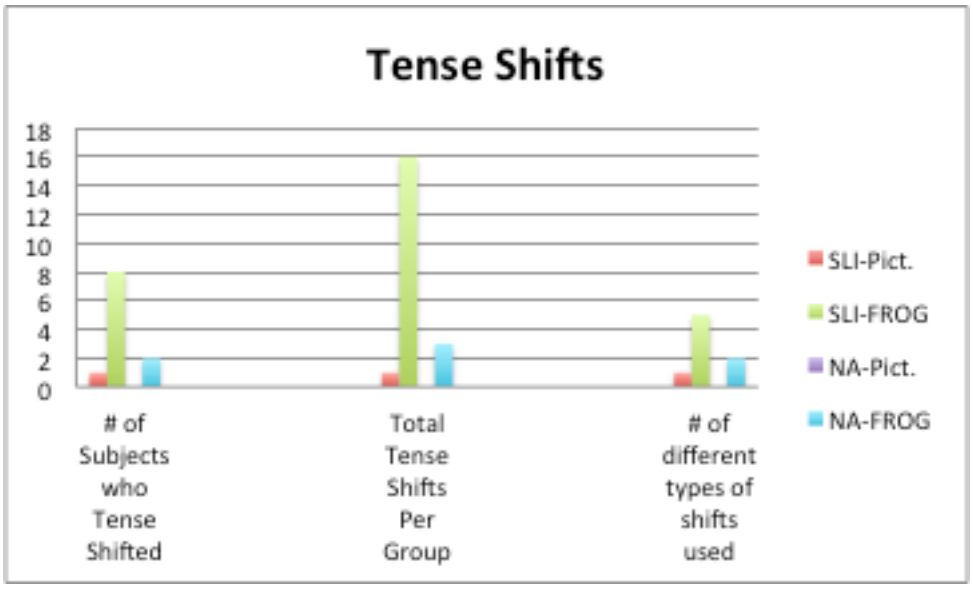
past, the SLI group produced higher error rates than their NA counterparts. The picture task was shown to elicit higher error rates for the SLI adolescents with an error rate of 2.8% for the irregular past, almost twice as large as the error rate of their NA counterparts. The FROG task elicited an error rate of 1.5% in the SLI adolescents using the irregular past tense. In contrast, the FROG task elicited a higher inaccuracy percentage rate from the NA adolescents using the irregular past tense. The NA adolescents using FROG had an error rate of 0.3%, whereas the NA adolescents using the picture method had an error rate of 0.2%. Analysis of the past copula form revealed the picture task eliciting a higher percentage of error for both the NA and SLI adolescents. With a mere difference of 0.3%, the SLI adolescents using the picture method had an error rate of 0.7% for the past copula whereas the SLI adolescents using the FROG method had an error rate of 0.4% for the same classification. Following the small discrepancy trend, the NA adolescents using the picture method had an error rate of 0.3% for the past copula, whereas their NA counterparts using the FROG method had an error rate of 0.2%. This equates to a mere 0.1% difference. This comparison shows the picture method having producing slightly larger error rates with the SLI and NA adolescents on the irregular past and past copula.

Tense Shifts in Narratives

Figure 22 shows a comparison of tense shifting patterns across tasks and between groups. The comparison reveals a considerable contrast between the tense shifts elicited by the picture method and the FROG method. For both the NA and the SLI groups, the FROG method was shown to result in more tense shifts, more adolescents who used tense

shifts, and more types of tense shifts. The FROG method, when compared to the picture method, showed a difference of 15 more tense shifts for the SLI group, seven more SLI adolescents who used tense shifts, and 4 more types of tense shifts. This difference was not as great for the NA group; however, the FROG task elicited tense shifts from these adolescents, whereas the picture method did not.

Figure 22.


Tense Shifts
18
16
14
12
10
8
6
4
2
0
# of Subjects who Tense Shifted
Total Tense Shifts Per Group
# of different types of shifts used
SLI-Pict.
SLI-FROG
NA-Pict.
NA-FROG

Comparison to Older Adolescents

The study is a replication of the previous Reed and Huber (2011) study, but conducted with younger adolescents. When comparing the older and younger adolescent groups, many consistencies were found across the age groups.

Several important similarities were found between the younger and older adolescents in both studies. Overall, both younger and older groups used more words and verbs with FROG, compared to the picture method. Similarly, irregular past tense was the most frequent verb form across the age groups. In both studies, the SLI groups used notably more present copula verbs than did their NA counterparts. This corresponds to a 5.2% overall difference in the younger adolescent group and a 5.8% overall difference in the older adolescent group. Lastly, the error rate was highest for the SLI group when using the FROG method in both studies. Both the older and younger SLI groups using FROG demonstrated the most individuals who made at least one error.

Several important differences were also found between the younger and older adolescents. Overall, the younger adolescents in this study used more words than did the older adolescents. There was also a greater word difference evident between the younger SLI and NA group. However, older adolescents in the Huber (Reed & Huber, 2011) study used greater word-to-verb percentages.

In the current study, the SLI group used a higher percentage of the irregular past tense. The irregular past accounted for 32.4% of the young SLI group's overall verbs and 26.9% of the young NA group's overall verbs. In contrast, the irregular past accounted for 19.8% of the older SLI group's overall verbs and 23.7% of the older NA group's

overall verbs. In this study, both the NA group and SLI group used more past than present progressive verbs, but in the Huber (2011) study with the older adolescents, the NA group used more past progressive whereas the SLI group used more present progressive. Past tense patterns continued to differ between studies, showing the younger adolescents used more irregular past tense with the picture method while the older adolescents used more of the irregular past with the FROG method. The opposite pattern was observed for the regular past, with the younger adolescents using more regular past with the FROG method and the older adolescents using more regular past with the picture method.

The differences between the methods and groups were further evident with the present tense form. The younger adolescents used more present tense verbs with the FROG method. These include third person singular and the present copula. The older adolescents used more present tense verbs when using the picture method. The difference in error rates between the two studies was observed for both the NA and SLI group. The younger adolescents had a larger error rate difference, with the SLI group having substantially more errors. The older adolescents demonstrated a much smaller error rate difference, but with the SLI group still having the larger error rate than the counterpart.

Discussion

The purpose of this study was to investigate the effect that a narrative elicitation task has on the verb morphology of younger adolescents with and without SLI. Verb patterns were identified by analysis of frequency, type, and accuracy and were then compared to previous research conducted by Reed and Conrad (2006) in which an alternative narrative task (FROG) was used to elicit narratives from the same sample of adolescents. Results from this study were also compared to those of Huber and Reed (2011), in which the same investigation between the two narrative tasks was conducted on older adolescents. This sections aims to discuss the consistencies and differences found in the verb patterns in the narratives elicited by the two methods as well as the implications of these findings. A brief summary of the main findings are listed below:

- The FROG method elicited longer narratives, with a higher number of verbs for both groups, than did the picture method. There was a 1.9% difference in the verb-to-word ratio for the SLI group, which for the NA group was less than a 1% difference in this ratio. (Figure 12)
- Both methods revealed the NA group used more past tense forms as a proportion of tense marked verbs than the SLI adolescents. The picture method, however, revealed this difference to a greater degree. (Figure 14)
- Both methods showed the SLI group having significantly higher error rates than their NA peers, with the picture method having a slightly higher difference in observed error rates between the SLI and NA groups. (Figure 18)

- The methods resulted in different tense shifting patterns, with the FROG method revealing a significantly larger amount of tense shifting and the picture method producing only one tense shift, which was from the SLI group. (Figure 22)
- Overall accuracy levels were lower with the FROG method for both the NA and SLI groups, while the picture method produced higher levels of accuracy for both groups. The SLI accuracy levels, however, were lower than the NA groups for both narrative tasks, adding evidence to the theory that deficits in verb morphology can be used as a potential clinical marker of SLI. (Figure 20)
- The observed differences in the narratives elicited from the same two groups of adolescents with the two different narrative tasks revealed that language performance differs based upon narrative task use.

Length of Narratives

When analyzing the word and verb use between the two narrative tasks, it was evident that the FROG method elicited longer narratives, more than double for the SLI group using the picture method, as well as higher verb-to-word percentages for both groups. The picture method was shown to elicit fewer words and fewer verbs than the FROG method, as well as lower verb-to-word ratios for the both the SLI and NA groups. As noted in Wetherall (2007), it is logical that a 24-page picture book would elicit longer narratives than a single picture. The comparison of narrative length is important because larger verb samples more accurately reflect the language patterns and abilities of an individual. If the picture method cannot elicit an accurate amount of verbs, then it may not accurately represent an adolescent's language ability.

Similarly, a comparison of narrative length revealed a greater difference between SLI adolescents in the total number of words used between the two tasks in comparison to the total number of words used by the NA group. This difference suggests that the narratives of the SLI group were much more susceptible to the change in narrative tasks than the narratives produced by the NA group.

Tense of Verbs in Narratives

The FROG method was shown to elicit greater amounts of both past tense and present tense verbs for both SLI and NA groups than did the picture method. With the exception of the notable use of the present copula for the NA group with FROG, the SLI group demonstrated a greater overall use of present tense verbs for both narrative tasks. The discrepancies between the two groups, in regards to present tense, were not large. In regard to past and present tense marked verbs only (excluding verbals and modals), the FROG method elicited 3% more past tense forms than the picture method for the SLI and NA combined. Overall, the proportion of past tense marking for FROG was greater for the SLI groups when compared to the past tense marking proportion for the picture method, thus exposing the different effects of the FROG narrative task on the elicitation of past tense verbs.

Both narrative tasks revealed the more frequent verb forms to be the irregular and regular past tense, which is important due to the amount of difficulties these verb forms present in studies about children and adolescents with SLI (Leonard et al., 2002; Rice & Redmond, 2001; Rice & Wexler, 1996; Rice et al., 1995; Rice et al., 1998; Rice et al., 2000). The FROG method was shown to elicit a greater percentage of irregular and regular past tense verbs, suggesting its candidacy as the more useful tool in eliciting past

tense verbs. The FROG method eliciting greater past tense usage compared with the picture method is significant since past tense morphological use has been shown to be particularly difficult for children and adolescents with SLI (L Leonard et al., 2002; Rice & Redmond, 2001; Rice & Wexler, 1996; Rice et al., 1995; Rice et al., 1998; Rice et al., 2000). Frequent attempts at past tense marking are especially helpful in providing clinicians greater opportunities to examine the verb patterns of adolescents.

The FROG method elicited a larger difference in regular past usage between groups while the picture method elicited a slightly larger difference in irregular past usage. The SLI adolescents used overall more regular and irregular past tense verbs. The SLI adolescents with the picture method were also shown to use more regular past tense verbs than their NA counterparts. The NA group, however, was shown to use a greater amount of the past copula form with both the FROG and picture method. The FROG method was shown to elicit a greater amount of both regular and irregular past tense verbs.

In regard to present tense forms, the FROG method elicited more of this form with both the SLI and NA groups. With the FROG method, the NA group used the highest percentage of present copula at a notable 25%. The SLI group with the FROG method used the greatest percentage of third person singular. These findings were inconsistent with the previous findings of Reed and colleagues (Reed & Conrad, 2006; Reed & Patchell, 2004; Reed et al., 2006) where the SLI group was shown to use a greater amount of present tense verbs. It should be noted, however, that contrary to the findings of Reed and Huber (2011), the FROG method elicited a greater amount of past tense usage than did the picture method.

The increase in verbal usage found in the picture method suggested the lack of finite tense marking with this narrative task in comparison to the FROG method. This finding suggests that the picture method might not be as effective in eliciting tense marked verbs, which would compromise the findings of the differences in tense marking between SLI and NA adolescents. If adolescents are using greater amounts of verbals, then analysis on tense marked verbs would take place on occurring verb forms less frequently. Furthermore, the picture method revealed the SLI group using more verbals than the NA group. This suggests that the SLI group is able to avoid past tense marking with this method.

Accuracy of Narratives

The FROG method revealed higher error rates for both the SLI group and the NA group. As expected, with both methods, the SLI groups produced higher error rates than their NA counterparts. This discrepancy was twice as great with the NA group than the SLI group. The discrepancy between the two methods was found to be slightly greater with the picture method. Because the FROG method elicited more errors, both groups and SLI adolescents had more errors generally, the adolescents using the picture method demonstrated a greater discrepancy between groups than did the FROG method. Both methods produced notable discrepancies between groups.

Although differences were found between the two tasks, both the FROG and picture task revealed the NA adolescents as having higher overall accuracy levels, with the picture method facilitating higher accuracy levels. The FROG method was shown to lead to higher error rates and lower accuracy levels for both groups, therefore suggesting that this method is more effective in revealing potential errors that are important for

research on SLI verb morphological patterns and for clinical identification of language impairment in adolescents. This finding is congruent with the results found in the study of (Reed & Huber, 2011).

Although Miller et al. (2008) found regular past forms to be a problem for SLI individuals as they continue into adolescence, both tasks in this study elicited 100% accuracy for the SLI group. The NA group, in contrast, was shown to have one error in the regular past when using the FROG method. However, the findings of Reed and Conrad (2006) warn that a decrease in regular past errors does not necessarily reflect improvement, but could indicate avoidance of a form the adolescents struggle with. As shown across the Reed studies (Reed & Conrad, 2006; Reed & Patchell, 2004; Reed et al., 2006), the SLI group showed a continuous deficit in regular past tense usage. The lack of deficit in regular past tense in adolescents with SLI and the evidence of deficits in this tense amongst children with SLI suggests an avoidance of this tense. However, the findings of Leonard et al., (2002) and Rice et al., (1998) suggest that when SLI adolescents use regular past tense, they tend to mark them with the correct morphological marker (-ed). The findings of this study appear to be consistent with this pattern.

With both narrative tasks the SLI adolescents produced more errors on the irregular past tense compared to their NA peers, which is similar to the results found in previous studies (Reed & Huber, 2011; Reed & Patchell, 2004; Reed et al., 2006; Rice & Wexler, 1996; Rice et al., 1995; Rice et al., 1998). The irregular past tense was the most frequent tense produced in error in both elicitation tasks. The picture method was more effective at eliciting errors based on the ratio of errors to total opportunities, although, the FROG method produced greater errors but had a comparatively smaller ratio of errors to

opportunities. This pattern reflects the difference in length of the narrative in the two methods, with the FROG narrative being longer.

Both tasks showed the SLI adolescents having a greater error rate for the past copula than their NA counterparts. The FROG method elicited higher error rates for the past copula for both groups, as well as a greater difference in error rates between the two groups. Difficulties with past copula usage have been observed in children with SLI (Rice & Wexler, 1996; Rice et al., 1998; Rice et al., 2000), but findings that these deficits persist into adolescence are supported primarily by the FROG method.

Tense Shifts in Narratives

As mentioned, tense shifts are a potential sign that stress has been placed on the language system by a narrative task. This suggests that tense shifts are used as a coping method to deal with the difficulty in managing tense and tense morphology. The two tasks in this study revealed a considerable contrast in tense shifting patterns. The FROG method showed both the SLI and NA groups struggling more with tense shifting, whereas the picture method showed both groups having no issues with tense shifting. Consistent with the findings of previous studies of Reed and colleagues (Reed & Evernden, 2001; Reed & Huber, 2011; Reed & Patchell, 2004; Reed et al., 2006), the FROG method also found that tense shifts increased in language-impaired individuals as they got older, while decreasing in their NA peers. This suggests a persistent deficit in the language of adolescents with SLI. The picture method, on the other hand, did not elicit these difficulties.

The difference in tense shifting between the NA and SLI groups was more obvious with the FROG method than with the picture method. These findings point to the FROG method as the more reliable method for gathering information on tense shifting af of adolescents with and without SLI.

Effects of the Narrative Task

The purpose of the current study was to investigate two different narrative tasks and the possibility of the tasks eliciting different patterns of verb morphology in adolescents with and without SLI. It was evident when comparing tasks and the discrepancies presented in the results that the different in narrative tasks did, in fact ,affect the verb patterns of the adolescents.

Overall, both methods revealed differences between the NA and SLI group. On irregular past tense, past copula, third person singular, percentage of verbs marked as past tense, verbal percentages, the picture method was more successful in revealing discrepancies between the groups. On measures of overall verbs to words, regular past tense usage, present copula usage, percent progressives as tense marked verbs, numbers of adolescents with at least one error, overall accuracy levels, and tense shifting, the FROG method was more effective in revealing notable differences between groups.

Significant findings in the comparison with the picture method consisted of the use of past and present tense as well as tense shifting. As previously mentioned, tense shifting is indicative of stress placed on the language system and a lack of tense shifting, as shown in the picture method, may suggest that the picture method was not challenging enough for the language systems of adolescents with and without SLI. Furthermore, error

rates on their own may not be a sufficient way to evaluate verb patterns of language-impaired adolescents. In the study of Reed and Conrad (2006), researchers advised that error rate measurements were to be investigated but were not to be used exclusively in distinguishing between language-impaired and normally achieving adolescents.

Furthermore, a comparison between the SLI group and the NA group revealed that the performance of SLI adolescents was more affected by the different narrative elicitation tasks than their NA counterparts. On measures of total verbs to words, percentage of verbs marked past tense, percent of progressives, number of adolescents with at least one error, percent errors and overall accuracy, the SLI adolescents demonstrated less stable patterns of use across tasks. The NA group, on the other hand, produced inconsistent patterns with the regular past, irregular past, present copula, past copula, and third person singular as well as with percentage of verbals. Since the language abilities of NA adolescents would theoretically be more developed than their SLI counterparts, it is logical that there will be some variability in the use of verb categories across tasks.

The comparisons shown above reveal the difference in patterns of verb use between SLI and NA adolescents from the same groups. From a clinical standpoint, it is apparent that one may be looking at the wrong component with only a single assessment. Therefore, it is important for researchers and clinicians to be aware that different tasks produce different observable results. Where one task may expose a deficit in one specific area of language in adolescents with SLI, the current study shows that SLI adolescents will perform at different levels than their NA counterparts when using a different task.

Implications

The current study results are similar to results found in a previous study (Wetherall et al., 2007), that showed how a difference in narrative task produced different characteristics in narratives of adolescents with and without SLI. Additionally, similar to the findings of the parent study (Reed & Huber, 2011), this study revealed that the SLI adolescents found the FROG task to be more difficult than a less structured narrative task, which is evidenced by the higher error rates and the greater number of adolescents producing errors.

A potential explanation for this finding is that the spontaneous narrative task used in the study of (Wetherall et al., 2007) and the picture method used in the current study placed fewer demands on the language system of adolescents and did not logically require any particular type of verb use, allowing freedom in verb tense choice compared to the structured picture book FROG method. It is evident that freedom in verb choice in narratives allows adolescents with SLI to choose verb styles easier for them, thus revealing less about their difficulties. When the adolescents were given a more structured narrative task (FROG), less freedom in verb styles were available, thus revealing a greater number of tense shifts likely for the purpose to avoid difficulties as well as exposing greater errors in the restricted style.

One potential reason SLI adolescents revealed less about their difficulties with the picture method could be due to their ability to use compensatory strategies to work around language difficulties when given the freedom to do so. Indication of these compensatory strategies is likely evidenced in the lower error rates observed in the picture method than the FROG method. SLI adolescents were able to use lexical verbs

and their forms they were more competent with in order to avoid forms they struggle with, thus explaining the lower error rates. With the FROG task, the SLI group used less past tense forms then the NA group, with greater errors than the picture method. With the picture task, the SLI group used more past tense forms than the NA group, with fewer errors than the FROG method. The SLI group with the picture method using greater past tense verbs shows that they were able to choose much of the content of the story and therefore the lexical verbs that reflected the content and thus the morphological forms of the past tense verbs they were comfortable with, and due to the lack of tense shifting, there was not enough pressure placed on their language systems to identify their difficulties.

As previously mentioned, these compensatory strategies may have accounted for the low error rates produced on both tasks. The difference in error rates between tasks could potentially be due to the SLI adolescents compensating more with the picture method than the FROG method. This would explain the higher error rates found in the SLI group with the FROG method compared to the picture method. It is possible that the picture method was not forcing the adolescents to use the past tense forms to the same degree as the FROG method, thus allowing freedom in choosing tense forms that more commensurate with their language abilities. This would explain the lower error rates for the picture method, as impairment in past tense marking was more easily disguised. This possible masking effect may also explain the difference in the number of individuals who made errors, explaining why the FROG method had many more individuals making errors than did the picture method.

Although these adolescents may be able to avoid a particular tense (e.g. past tense marking) during certain tasks (e.g. storybook narratives and single-picture narratives), avoidance strategies hold these adolescents back from realizing their weaknesses and thus they will continue to be delayed in achieving an adult-like language system similar to their NA peers. It is important that clinicians and researchers recognize this possible avoidance so that narrative tasks can be structured in a way that forces these adolescents to deal with their language difficulties (Wetherall et al., 2007). In order to more accurately reveal the difficulties of the language system, clinicians and researchers may want to use more structured narrative tasks to force past tense usage.

Although adolescents with SLI may be using compensatory strategies in order to avoid past tense marking and in turn causing low rates of error, it is important to observe the fact that SLI adolescents are still performing at accuracy levels lower than that of their NA peers. Therefore, it cannot be accepted that adolescents with SLI have mastered verb morphology compared to their peers, which strengthens verb morphology as a potential clinical marker of SLI. According to the research of Rice and Wexler (1996), verb morphological performance can still be considered a clinical marker for SLI because the current study shows adolescents with SLI continuing to exhibit difficulty in the use of tense marking morphemes and continuing to cluster at low levels of performance when compared to their NA peers. However, verb morphology as a clinical marker may present itself differently in adolescents than in children. Difficulties in children with SLI were observed by an increase in error rates of past tense forms, whereas difficulties in adolescents were evidenced by a possible avoidance of past tense forms due to the less structured task of the picture method. It is important that clinicians and researchers

recognize that difficulties in verb morphology in individuals with SLI do not disappear into adolescence. It is also important to note that while language impairment may persist into adolescence, the nature and/or manifestation of the impairment may change over time (Miller et al., 2008).

It is evident as well as concerning that error rate and tense shifting in the picture task may mask the difficulties of verb use in SLI adolescents even though their impairment appears to be persistent. Therefore, it is important that researchers and clinicians are aware that different narrative tasks elicit different verb patterns in adolescents and the narrative tasks used to assess these impairments should be more structured with more constraints on the language in order to be more challenging.

The current study reveals that the FROG method was more successful in revealing the verb morphological defects in the adolescents with SLI and is consistent with previous studies (Reed & Conrad, 2006; Reed & Huber, 2011; Reed & Patchell, 2004; Reed et al., 2006). However, an even more structured narrative task might alleviate the masking effect that was used across tasks. The results of this study help contribute information in regards to proper narrative elicitation methods for observing and understanding the verb morphological patterns in the adolescents with and without SLI. Analysis of narrative tasks and effects of the verb patterns of adolescents with SLI should continue to be investigated in order to find more conclusive results.

Strength of Current Investigation

A principal strength of this study was the specific criteria used for selecting participants. Each participant's eligibility was compared to strict standards and the

adolescents were pair matched according to these criteria. The purpose of this was to ensure that any observed differences between the pairs would be due to language differences and not impacted by other variables. This helped to eliminate extraneous factors that could interfere with the data and results. Both a questionnaire and a thorough testing method were used to determine each participant's eligibility beforehand.

Furthermore, the adolescents were pair-matched based upon four things: NVIQ, age, gender, and SES. The use of pair-matching was helpful in comparing the two groups side by side while eliminating extraneous factors that could have interfered with language performance. Similarly, the two narrative tasks were examined using the same group of adolescents. This allowed for a more accurate comparison of tasks.

An additional strength was that two different single pictures were used and evenly assigned across both groups. This eliminates any extraneous factors that could have been due to the picture rather than language.

The transcriber used in this study was familiar with both SLI and NA adolescents and was trained on proper transcription. The tapes used by the transcriber were of high quality and presented no issue, thus strengthening the results.

Another strength of the current study was the reliability measures taken. The researcher completed practice samples in order to become competent in verb analysis. The researcher's supervisor had extensive experience with such analyses and previous research. Each verb was carefully categorized and the final analysis was not complete until the researcher reached an agreement with the supervisor. Furthermore, consistency was emphasized and verbs were categorized based upon a standard agreement in method

between the researcher and her research supervisor. Agreement in identifying and classifying the verbs in the transcribed language transcripts was high, with the two reaching 93% agreement. The researcher was also consistent in her analysis, with the intra-rater agreement at 95%.

Limitations of the Current Investigation

A primary limitation of the current study was the small sample size. It was difficult for the researcher to obtain a larger sample due to the stringent measures used to obtain pair-matched adolescents. Therefore, broad generalizations cannot be made about the results.

The variability noted in the adolescents was also noted. Because groups were analyzed as a whole, individual adolescents were not represented as accurately. The SLI group presented more variability than did the NA group and according to Leonard et al., (2009), greater variability within groups of SLI adolescents is generally a recognized characteristic of the SLI condition.

Another potential limitation was the narrative task elicitation order. The FROG method was used first and after an assessment break; the picture method was then used. It is possible then that the adolescents may have performed better on the picture task because they were able to practice first with the FROG task. The order of this performance could explain the lower error rates and lack of tense shifting with the picture method. The greater use of present tense with the FROG method could also be potentially explained by this practice effect.

An important factor that must be considered for this study was the native language of the adolescents--Australian English. Due to this difference from American English, considerations had to be taken in order to recognize the differences between the two dialects. The difference in dialects did not seem to present any language difference across groups and tasks. The interpretation and classification of verbs was not affected by dialectical differences in this study.

Conclusion

In summary, using two different narrative tasks revealed different patterns of verb usage for both adolescents with and without SLI. Furthermore, the differences between verb patterns as a result of the narrative tasks used were more evident for the SLI adolescents than the NA adolescents. Finally, the FROG task was more successful in eliciting and revealing verb difficulties in SLI adolescents. All of these results are similar to those found in the parent study of Reed and Huber (2011). This suggests that the FROG method should chosen over a single picture task by clinicians and researchers when examining verb morphological patterns of adolescents with and without SLI.

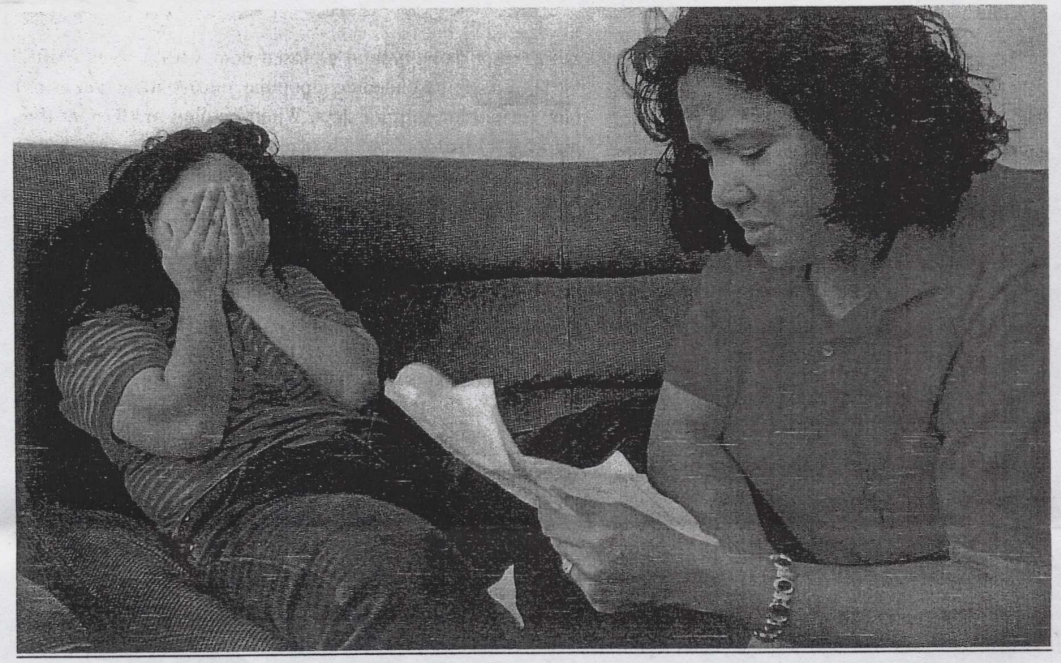
Appendices

Appendix A

Picture 1 (original source unknown) from Hughes et al. (1998)

Appendix B

Picture 2 (original source unknown) from Hughes et al. (1998).



Appendix C

Reasoning and Explanation for Classification and Counts

Guideline Resources

It should be noted that a Webster's dictionary was used for clarification and insight in several cases regarding acceptable functions and forms of different verbs.

Correct versus Incorrect

Scoring a verb as incorrect was based upon the target form. For example, "eated" would be marked as incorrect based on the target form, the irregular past "ate". Therefore, an "x" would be placed in the incorrect box in the irregular past category.

Because mazes were not analyzed in the current study, incorrect verb forms found in mazes were not marked as incorrect.

Everyday vernacular and common phrases with improper grammar were not marked as incorrect, but were instead considered common and correct in everyday language. These phrases were not frequent and were scored on the basis of the error being attributed to specific language impairment. For example:

/they would try and get it later/

Proper English grammar would require this sentence to have read /they would try to get it later/. However, errors like these would not be attributed to SLI, but instead would be considered common in everyday vernacular. Therefore, careful consideration was used to determine if an error resulted from language impairment or if it was common in everyday language. Everyday vernacular errors were marked as correct.

Gerund v. Participle-ing

The following rules for determining the difference between gerunds and participles are as listed:

Gerunds fulfill the functions of subject, direct object, object of the preposition, and predicate nominative in a sentence. These are generally substituted in place of nouns.

Participles fulfill the function of a modifier and therefore add additional information to the sentence, similar to the function of an adjective.

> If the "-ing" word or phrase in question can be removed from the sentence and the sentence still makes sense, then it is most likely a participle.
>
> If the "-ing" word can be replaced by a noun and maintain grammatical correctness, it is most likely a gerund.

The Past Participle and the Normal Adjective

The past participle form is common in utterances, however, not all of these forms are true past participles. Many of them are regular adjectives, with their location being before a noun. Another clue that helps determine a past participle from a regular adjective is the presence of modifying adverbs, which would indicate the existence of a regular adjective. For example, in the sentence "Jessica was very frightened" the phrase "was frightened" could easily be mistaken as containing a past participle (frightened) and would be placed in the "be (past) + past participle" passive form classification. However, for purposes of this study, the verb phrase was categorized as"

- "was"= past copula

- “frightened”= predicate adjective
- “very”= adverb modifying “frightened”

A past participle can be easily identified by observing its position within the utterance. For example, “The cat named Leo meowed loudly”, “named” is a true past participle and does not occur in traditional adjective position, but clearly modifies “cat”. “Named” also cannot be replaced with a normal adjective, such as “ugly” or “happy” or “small”, which is another indication that it is a true past participle and not a normal adjective.

However, it is important to note that if the original utterance had read, “Jessica was very frightened by the dogs”, this situation would be different. This utterance is clearly passive (as indicated by the “be + past participle” form and the presence of “by the dogs”). Furthermore, this utterance would lose its meaning if the word “frightened” was replaced by a normal adjective (i.e. “Jessica was very happy/sad/ugly by the dogs”).

The Present Progressive and the Normal Adjective

There is an issue similar to the one above with verbs in the form of a present participle and following the word “be”. For example, in the case of “the cheetah was missing” the verb phrase “was missing” may appear to fall in the “present progressive” category of classification. However, in order to be classified as a progressive verb, the action must be present. Therefore, in this case, the “was” is suggesting a state of being by the cheetah and this state is described as “missing”, rather than an action the cheetah was taking, as would be the case in “the cheetah was missing its mother” or “the cheetah was running through the jungle.”

Main Verb Uninflected v. Infinitive with Obligatory Deletion of “to”

The fact that determines the difference between a "main verb uninflected" and an "infinitive with obligatory deletion of 'to'" is to see if the verb in question is the *main* verb of the clause/utterance. Infinitives with an obligatory deletion of "to" will have another verb preceding it. Furthermore, an uninflected main verb is always in present tense and never in third person singular.

Modals

/they'd have to drive it/

- would have= modal contracted + MV
- to send= infinitive

Word Forms

Since the participants in this study were fluent in Australian English, there were noted inconsistencies between their dialect and American English in terms of word forms and grammar. These difference were taken into consideration:

"bought" v. "brought"

Both were considered correct in terms of scoring. "Got" and "gotten" in the past participle position were also both marked correct.

An important consideration concerns subject/verb agreement. American English considers any subject that is referred to as one group or object to take a singular verb, whereas in Australian English, it is common to take either a singular or plural verb. For example, in the case of "A number of dogs was invited", "number" would be considered one entity, though it refers to more than one, but in American English this same utterance

would have correctly read “a number of guests were invited.” In this case, the grammar of the participant’s culture determined the correctness of the grammar used.

Regular Past –ed

/The woman paid the cashier for her groceries/

“Paid” was marked as regular past tense “-ed” because the spelling is irregular, not the morphology.

Template

One last consideration concerns the template used to classify the verbs. The classification groups were originally based on those developed in the study of Reed and Evernden (2001), which looked at the verb morphology of younger adolescents. However, changes were made in the current template in order to reflect unanticipated verb forms, which were not present in the language samples derived, by Reed and Evernden (2001). This template was later used by Reed and Conrad (2006) and revised again for the current study to account for variation in verb types by change in elicitation task. Therefore, the list of classifications contains new categories.

Counting Words

To achieve a total word count, every word in the narratives, excluding mazes, was counted for. Contracted words were counted as a single word, in order to be consistent with Brown’s (1973) rules for counting morphemes.

Counting Verbs

Rules for counting verbs differed from word count, in that verbs were often counted in a phrase rather than the individual amount of verbs contained in a phrase. For example, infinitive verbs, as in “to eat” would be counted as one verb under the “Infinitive Verb” classification. For a word count, “to” and “sleep” would be counted as two separate words, but only as one single verb.

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